

ITEMS OF INTEREST.

VOL. X.

PHILADELPHIA, DECEMBER, 1888.

No. 12.

Notes from the Profession.

AMERICAN DENTAL ASSOCIATION—SOUTHERN DENTAL ASSOCIATION.
JOINT MEETING, 1883.

Reported for ITEMS OF INTEREST, by "Mrs. M. W. J."

[Concluded from page 484.]

Dr. Frank Abbott read a paper entitled

THE ODONTOBLASTS IN RELATION TO DEVELOPING DENTINE,

defining and contrasting the "Secretion" and "Transformation" theories, to the latter of which Dr. Abbott gives his adhesion as affording a more scientific solution of the problem of the development of the continuous mass of dentine.

This paper was discussed at some length by Drs. Abbott and Suduth—the causes of caries—the germ theory, Dr. Miller's investigations, and other co-relative topics, prolonging the discussion to the hour for adjournment.

Papers on

MATERIA MEDICA AND THERAPEUTICS

were read by Dr. A. W. Harlan and Dr. J. G. Noel ; also one from Dr. Arthur C. Hugenschmidt, Paris, France.

Dr. Noel reviewed the Dental Materia Medica, giving the uses and applications of the most valuable medicaments.

Dr. A. W. Harlan confined himself to the new remedies introduced in 1887 and 1888. Among these are several new coal-tar products, and some new derivatives of the essential oils—among the latter, guaiacol, a derivative of wood-creasote, containing the active principles of that drug, and a valuable disinfectant for slow disinfection, its integrity remaining unimpaired if sealed up in a pulp cavity for forty, sixty or seventy days.

Dr. Hugenschmidt's paper, which was read by Dr. Harlan, was on the

HYPODERMIC INJECTION OF MURIATE OF COCAINE,

in conjunction with antipyrine.

He has used it with complete success for extractions ; exploring for missing teeth ; implantation ; painless cauterization with red hot

iron point, in removal of epulis. He enjoins very strict antiseptic precautions, rinsing the mouth with permanganate of potash, and mopping the spot to be injected with cotton saturated with bichlorate of mercury. The contra-indications are fright on the part of the patient, great obesity, hysteria, anemia, and advanced stage of disease. The antidotes are the inhalation of 5 drops of nitrite of amyl, 40 drops of ether in brandy internally, or the hypodermic injection of 30 drops of sulphuric ether.

In the discussion which followed the reading of these papers, Dr. Story (Dallas, Texas) gave the history of a case in which very peculiar results followed the hypodermic injection of cocaine, a stiffening of the joints of fingers, elbows and shoulders, being followed by the eruption of a solid mass of pimples, from elbows to wrist, which after three or four days were succeeded by boils and sores.

Dr. Peabody (Louisville) desired opinions as to the therapeutic action of lead used as root-filling. Many cases of apparently incurable abscess, giving no further trouble after the insertion of a root-filling of soft lead, sealing the apex or perhaps passing beyond. He has had this unlooked for result in cases in which the abscess had been treated in vain for months. Since his first accidental success, ten years ago, he has adopted the method with unfailing success.

The only opinion expressed was that the closing of the apex prevented the passage of any source of irritation, nature working a *cure* when the *cause* was removed.

Dr. J. J. R. Patrick said that he could, with perfect satisfaction, confine himself to three therapeutic agents, viz. :

1. Corrosive sublimate.
2. Peroxide of hydrogen.
3. Nitrate of silver.

The first he uses in the strength of 5 grs. to the oz., which he considers perfectly safe in the small quantity used on fibres of cotton in a tooth.

Dr. Sudduth said this might be true if it could be absolutely confined in the pulp canal; but he considered it a dangerous poison. For a mouth wash, for instance, it should not be prescribed stronger than $\frac{1}{2}$ gr. to the oz. He considers, also, that we cannot dispense with carbolic acid, for its stimulating properties.

To the list of indispensables Dr. Morgan would add the tincture of iodine, to produce resolution and absorption—to reduce induration of glandular tissue.

Dr. Staples (Sherman, Texas), after treating with carbolic acid, forces dry oxide into the root canal, to stop the apex, filling with gutta-percha.

Dr. Rawls believes that pyorrhea alveolaris is caused by mercury, taken either by the individual or his ancestors. The excessive use of common salt he also considers a factor in its causation. He thinks that it is only susceptible of temporary relief, and is never entirely cured.

PHYSIOLOGY AND ETIOLOGY.

Papers were read by Dr. H. A. Smith, Cincinnati, on Implantation; Dr. Louis Ottofy, Chicago, on the Incipency of Dental Caries; and Dr. J. D. Patterson, Kansas City, on Pyorrhea Alveolaris. In preparing for his report to Section VI., Dr. H. A. Smith addressed circulars to a number of the most prominent operators in *implantation*, embodying their replies in tabulated form. The result is very interesting, showing in statements from seventeen operators, including Dr. Younger, Dr. Geo. Cunningham, England, Dr. E. C. Kirk, Dr. E. T. Darby, Dr. E. S. Chisholm, Dr. Louis Ottofy, Dr. B. A. R. Ottoleungli, and others, a percentage of eighty-five successes to fifteen failures, four reporting no failures. Three report failure from absorption of root; four report vital or membranous attachments, four report ankylosis. By many the operation is still regarded only as a scientific experiment; time alone can solve the question of its permanency. Whether success is sufficient to justify the risk of infection remains to be seen.

Dr. Patterson's paper dealt with the

CATARRHAL NATURE OF PYORRHEA ALVEOLARIS.

From continued observations made since his first paper on the subject, his conclusions have been universally confirmed, viz.: that pyorrhea alveolaris is a genuine catarrh having its seat in the oral cavity, and due to open-mouth breathing or irritation from morbid oral secretions, as from calculi, ill-fitting plates, jagged edges of teeth, etc. The membrane weeps out its protest and catarrh results. Quoting from the best authors on nasal catarrh, the identity of the pathological symptoms was clearly shown.

Dr. Louis Ottofy's paper on

THE INCIPIENCY OF DENTAL CARIES

Was largely statistical, and accompanied by charts, tabulating, under different aspects, percentage resulting from study of 9,544 teeth, a general summing up showing that caries affects the upper teeth more generally than the lower, with no difference in the two sides of the mouth, and a proportion of 3 to 2 males to females. The lower cuspids are the least affected, the lower first molars the most, ranging from .01 per cent for lower cuspids, .05 per cent for upper cuspids and lower laterals, .55 per cent for upper laterals, .04 per cent for lower centrals, .85 per cent for upper centrals, 1.25 and 1.57 per cent for upper and lower second molars, to 7.20 and 7.70 per cent for upper

and lower first molars. His observations also show that 30 out of every 100 carious teeth are affected before the age of fifteen years.

In the discussion of Dr. Patterson's paper Dr. Genese prescribes a powder compound of 1 dr. boracic acid to 1 oz. precipitated chalk to be packed around the teeth night and morning. After the removal of deposits and syringing out with aromatic sulphuric acid, Dr. Story uses a powder of

2 oz. prepared chalk,
1 oz. lac. sulphur,
 $\frac{1}{2}$ oz. borate soda.

Dr. J. S. Marshall reported the successful replantation of a tooth—left upper central incisor—so badly affected with pyorrhea alveolaris that the anterior alveolar wall was all gone, and a good portion of the posterior wall; it was so loose that it could be twisted with the fingers, a probe reaching clear to the apex; it was also elongated one quarter of an inch. The socket was deepened, and the tooth held in place by a splint cemented to the adjoining teeth. The splint was worn for eight months, and has now been off three months. There seems to have been a reproduction of alveolus, and he considers it a success.

Dr. W. H. Atkinson reported the treatment and cure of a left lateral incisor, in even worse condition, there seeming to be no bony socket at all, and the crown projecting a half inch below the line of the central and cuspid. The tooth was ligated to place, and the superfluous length dressed off with sharp corundum wheel. His treatment was thorough saturation of the diseased tissues with arom. sulph. acid, rinsing with common bicarbonate of soda, to neutralize the acid on the teeth. A paste of calomel and glycerin is good in the pockets. If the sulphuric acid does not act well, it should be supplemented by caustic potash and carbolic acid. To make a dry paste, the crystals should be mixed in a mortar set in boiling water, in the proportion of $1\frac{1}{2}$ to 2 parts carbolic acid to 1 part caustic potash, not allowing a drop of water to enter the mixture. This will make a dry paste that can be broken in small pieces with the tweezers and laid in the pockets, a second application being seldom required.

Dr. William N. Morrison recommends for the removal of deposits on very loose teeth the use of a very delicate, long blade spicula forceps, one beak resting on the incising edge of the tooth to steady it, the closing motion of the forceps scaling off the deposits.

Prof. Taft spoke at length on the importance of thorough diagnosis, the best methods of treatment and the danger of over-treatment.

ANATOMY, PATHOLOGY AND SURGERY.

Dr. Brophy reported the great advances made in surgery, especially in the transplantation of tissues from man to man, and from the lower animals—especially rabbits—to man. Tooth implantation, bone-

grafting, skin-grafting, transplantation of mucous membrane, of nerve-tissue, with restoration of nerve-functions, and even of cornea, with restoration of sight, having been successfully accomplished.

Dr. J. S. Marshall reported the continued success of the case reported to the International Congress at Washington last year, in which a number of small pieces of rabbit's bone were successfully grafted in the lower jaw, replacing a section of the inferior maxillary, $1\frac{1}{2}$ inches long, removed in an operation for osteosarcoma. He also gave the history of a fatal case of alveolar abscess, the patient dying from exhaustion due to too profuse and too long continued discharge from an alveolar abscess. As the facial artery had been severed by the hospital surgeon, who had made three external openings before Dr. Marshall saw the case, the soft tissues being so extensively necrosed that the ligatures sloughed off with several arterial hemorrhages; and as the inferior wisdom teeth were extracted during this necrosed condition, large masses, perhaps four ounces, of necrotic tissue being removed from the neck under the jaw; opinion was much divided as to the cause of death; Dr. Marshall attributing it to the profuse discharge from the abscess; Dr. Patterson to exhaustion from the arterial hemorrhages characterizing the blundering operation of the surgeon as the chief factor, while Dr. Atkinson thought the extraction of the wisdom teeth in the diseased condition of the soft parts the stepping stone to death.

Dr. Sudduth thought everything in the condition of both teeth and territory against the probability of success in the old operations of *replanting* and *transplanting* teeth, while on the other hand everything favored success in *implantation*. A wound is made in healthy tissues, from which we have healthy exudation, for the formation of fibrous tissue and bone cells. If inflammation can be kept at the minimum, with only enough for stimulation, we have all the conditions necessary for success.

Dr. W. H. Morgan feared that nature would not tolerate the introduction of dead matter—scar-tissue, hugging the foreign body closely, might be tolerated for a time, but it would eventually be dissolved and thrown out.

Dr. Beach thought there might be an effusion of bone cells, an encasement holding the implanted tooth in place; but he considered actual union between the live and dead tissues an impossibility.

Dr. Abbott thought the tooth held in place by the exact fit between root and socket. The inflammation produced by the digging-out process producing granulations, which force their way into the root of the tooth, the surface of which is dissolved out by that process. If the fit is not perfectly tight decomposition will result from the multiplication of micro-organisms.

Dr. H. A. Smith said that if the fit was so accurate that the tooth had to be driven in, a high grade of inflammation would be induced, followed by disintegration.

Dr. Catching said that in a case of implantation by Dr. E. S. Chisholm there was positive ankylosis necessitating the nipping off of the alveolar process for its extraction.

Dr. Taft thought the analogy between this process and sponge-grafting would throw some light on the subject.

The cementum of the implanted tooth is structurally ready to receive plasm which displaces the organic matter there, being replaced by living substance, as is the case in the sponge graft; it is not, therefore, a union between living and dead tissue. No other hypothesis can explain the whole thing, though it still needs demonstration and proof.

PROSTHETIC DENTISTRY, METALLURGY AND CHEMISTRY.

Dr. J. Rollo Knapp presented a lengthy report from this committee, reviewing the recent additions to our literature on this subject, giving a history of the dental uses of aluminum and the advances made in crown and bridge work.

Dr. Genese read a paper on

RUBBER,

which, he thinks, we are not justified in totally condemning because of its abuse. Students should be taught the best methods of manipulation, and how to use it so as to utilize all of its best qualities in the most perfect substance. It is an inexpensive material; but it has its proper place, and like its prototype amalgam, it should have the best treatment.

DENTAL EDUCATION AND LITERATURE.

Dr. Taft made a brief verbal report for this committee.

Dr. Louis Ottofy read a statistical paper on

DENTAL EDUCATION.

Dr. W. H. Atkinson read one on

TERMINOLOGY.

Dr. Taft read a paper from Dr. B. Holly Smith on

DENTAL EDUCATION,

and Dr. Ingersoll read another on

METHODS IN DENTAL COLLEGE EDUCATION.

The three first named papers were passed without discussion.

The *method* advocated by Dr. Ingersoll is so at variance with the usual college methods, being that of question and answer, or recitations, in preference to the didactic system, that an animated discussion followed the reading of his paper.

The method advocated, while admitted to secure thorough acquisition of knowledge, was considered too primary for dental college students, many of whom are graduates from colleges or high schools.

Dr. Morgan stated that it was largely followed in the Meharry College for "the brother in black," securing admirable results.

Dr. George J. Friedrichs read the report from the committee on

DENTAL HYGIENE,

or rather *hygiene*, for he deprecated the use of the term *dental hygiene* as being on a par with *hepatic hygiene* or *pulmonary hygiene*. He said the importance of a knowledge of hygiene is seen in the fact that through the observance of the laws of hygiene the duration of human existence is prolonged, while thousands are cut off untimely by the neglect of, indifference to, or ignorance of the plainest laws of hygiene. Practical hygiene means the prevention of disease; and this may be attained in two ways, by the avoidance or removal of causes, or by rendering the body less susceptible to disease.

This is more nearly attainable in the lower animals, whose surroundings, regimen, breeding, etc., we can control, than in the human race.

Microbial discoveries have placed therapeutics on a new basis. The subject of dietetics should occupy the front rank in medical art. What constitutes the pabulum of physical life, and what is the best substitute for mother's milk are still open questions for investigations.

After a brief discussion of this paper by Drs. Atkinson and J. J. R. Patrick, the Associations adjourned.

Drs. Abbott and Catching made brief farewell addresses of congratulation on the spirit of harmony and fraternal feeling which had so pre-eminently characterized the joint meeting of the American and Southern Dental Associations.

Dr. John C. Story (Dallas, Texas) offered a "benediction" in the words: "Behold how good, how pleasant it is for brethren to dwell together in unity!"

Gymnemic Acid is derived from an Indian plant. If a few drops of the acid, well diluted with water, be taken into the mouth, the capability of perceiving either bitter or sweet tastes will be lost for two or three hours. Gingerbread will taste only of ginger, and quinine gives the sensation of "so much chalk."—*S. Cal. Practitioner*.

Dr. G. H. Hale, of Saginaw, Mich., has a valuable dog which he wishes to enjoy all the advantages of modern science and civilization. A few days ago, noticing that disease had attacked one of the dog's teeth, he proceeded to fill it.

THE LEGAL STATUS OF DENTISTS.

DANIEL NASON, ESQ., NEW YORK.

[Continued from page 502.]

If the evidence in an action of malpractice against a dentist shows that the patient himself has been in any way guilty of negligence contributing to the injury complained of, there can be no recovery. Nothing can be clearer than that it is the duty of a patient to co-operate with his professional adviser; but if he will not, or under the pressure of circumstances cannot, his neglect is his own wrong or misfortune. No man can take advantage of his own wrong or charge his misfortune to the account of another.* The general doctrine of contributory negligence as applied to dentists is this: If the patient, by the exercise of ordinary and reasonable care, could have avoided the consequences of the dentist's negligence, then he is not entitled to recover. On the other hand, if by the exercise of ordinary and reasonable care he could not have avoided the consequence of the dentist's negligence, then he can recover.

In the recent case of the Richmond Tooth Crown Company v. Pommer,† the doctrine of contributory negligence is well illustrated. Dr. Sheffield, for the company, had placed in the mouth of the defendant a certain operation known in the profession as crown and bridge work. Mrs. Pommer not having paid the company's bill, an action was brought against her to recover the amount. She set up in her answer that there had been gross malpractice in performing the operation; that she had suffered greatly therefrom, and that her jaw had been severely injured and distorted. On the trial it appeared that these dentures when first put in might cause some pain, and that they, as other artificial teeth, require adaptation to the mouth of the wearer; and further, that it was proper and usual for the patient to return and have this done; that this patient, though she had an appointment for this purpose, had not done so; but, after delaying some time, had gone to another dentist or a physician and had the original operation removed. The defendant had not only refused to pay the bill, but had demanded large damages for her suffering and the injury alleged to have been done her jaw. On these facts the judge substantially charged the jury as law that if in their opinion the defendant had, by her failure to return to the plaintiff and permit the proper adjustment of the operation, materially contributed to the injury complained of, she was guilty of contributory negligence and could not recover. The jury returned a verdict for the company.

* McCandless v. McWha, 22 Pa. St., 261.

† Not reported.

The mere fact that a dentist renders his services gratuitously does not excuse him from performing his work with the same degree of skill and diligence as if he were acting under the incentive of a consideration or a prospective reward. It is not the consideration which constitutes the foundation of his responsibility, but the fact of his voluntarily accepting the trust; the maxim, *spondet peritiam artis*, applies indiscriminately to all. He cannot, therefore, apportion his skill or diligence to meet the emoluments flowing out of any given case.*

The burden of proof in an action against a dentist for malpractice is on the plaintiff; he must prove the negligence charged, including the defendant's want of skill and knowledge where that is relied on, the proximity of the injury, and the absence of contributory negligence on his part.

These are all questions of fact for the determination of the jury; but the rule is imperative that the court should not submit the case to the jury unless the evidence in its opinion is such that from it malpractice may be reasonably inferred.

Damages recoverable for injury arising from malpractice rests to a great extent in the discretion of the jury, and must of necessity be uncertain. In estimating damages to be awarded, the jury may take into account the bodily pain and suffering, and loss of time caused the patient by the injury, the expense incurred, and the effect, whether temporary or permanent, on his capacity to pursue his customary work. If the damages awarded are so excessive as to strike every one with their enormity and injustice, and are such as to induce the court to believe that the jury must have acted from prejudice, partiality or corruption, the verdict will be set aside.

A curious and interesting discussion has arisen as to whether, in view of the statutory exemption from levy and sale by virtue of an execution, a dentist's implements are to be considered as the tools of a mechanic or the instruments of a professional man; in this State the former to the value of \$25, and the latter to the value of \$250, are exempt.

In *Maxon v. Perrott** the Supreme Court of Michigan decided: "A dentist is a mechanic within the meaning of their statute. In that case the court observed: A dentist is in one sense a professional man; but, in another sense, his calling is mainly mechanical, and the tools which he employs are used in mechanical operations. Indeed, dentistry was formerly purely mechanical, and instruction in it scarcely went beyond manual dexterity; and a knowledge of the human system generally, and of the diseases which might affect the teeth and render

* *Ordonaux, Jurisp. of Med.*, 30.

an operation important, was by no means considered necessary. Of late, however, as the physiology of the human system became better understood, and the relations of the various parts and their mutual dependence became more clearly recognized, dentistry has made great progress as a science, and its practitioners with much justice claim to be classed among the learned professions. It is, nevertheless, true that the operations of the dentist are still for the most part mechanical, and, so far as tools are employed, they are purely so; and we cannot exclude these tools from the exemption which the statute makes without confining the construction of the statute within limits not justified by the words employed."

On the other hand, in *Whitcomb v. Reid*†—a Mississippi case—the court said: "A dentist cannot properly be denominated a mechanic. It is true the practice of his art requires the use of instruments for manual operation, but it also involves a knowledge of the physiology of the teeth which cannot be acquired but by a proper course of study; and this is taught by learned teachers on the subject, and as a distinct though limited department of the medical art in institutions established for the purpose. It requires true science and skill, and, if such persons could be included in the denomination of mechanics because their pursuit requires the use of mechanical instruments and skill in manual operations, the same reason would include general surgeons under the same denomination; because the practice of their profession depends in a great degree on similar instruments and operative skill. Nor could such a pursuit properly be said to be a trade."

The latter view has been received with more favor than the former, and to us is manifestly correct.*

Fulfillment of the statute requiring a dentist to have a diploma or certificate of qualification from the State Dental Society, or from the faculty of a dental or medical college, recognized as of reputable standing by the State Dental Society, is undoubtedly a condition precedent to his right to recover compensation on contract, express or implied, for services rendered by him in a professional capacity.

Subject to this statutory enactment, a dentist is entitled to recover from a patient for his services an amount fixt by an express contract, if there is one; and if there is no express contract, or if there is one which is silent or indefinite in regard to compensation, he may recover a reasonable compensation for his services; for it is a principle well established that, when one has used his skill and labor for the benefit of another, the law raises an implied promise on the part of the latter to remunerate the former as he deserves.

* 17 Mich. 332.

† 31 Miss. 567.

* 18 Alb. L. J. 384.

As to the amount of benefit which must have accrued to his patient to entitle a dentist to recover for services rendered, the rule is that if there has been no beneficial service, there shall be no pay; but, if some benefit has been derived, though not to the extent expected, this shall go to the amount of the plaintiff's demands, leaving defendant to his action for negligence.†

If the good effects of his treatment, and the consequent value of his services are disputed, he must be prepared to show that his labor was performed with the ordinary skill and diligence and in the ordinary way of his profession. In a case ‡ where the plaintiff sued to recover for work and labor done, one of the judges said: "I think in either case the plaintiff must be prepared to show that his work was properly done—if that be disputed—to prove that he is entitled to his reward: otherwise he has not performed that which he undertook to do, and the consideration fails. And I think it is competent for the defendant to enter into such a defence as well where the agreement is to do the work for such a sum as where it is general to do such a work. If a man contracted with another to build a house for him for a certain sum, it surely would not be sufficient to show that he had put together such a quantity of brick and timber in the shape of a house, if it could be shown that it fell down the next day; but he ought to be prepared to show that he had done the stipulated work according to his contract. And it is open to the defendant to prove it was executed in such a manner as to be of no value to him, or not to be of the value claimed." If, for instance, a dentist administers chloroform to a patient, and then extracts the wrong tooth, he cannot recover for his services; nor can he, if his bill has been increased by his own mistake, as when, being employed to extract a tooth and insert an artificial one in its place, extracts two and has to insert two, recover for this additional amount of work. Lord Kenyon thus states the law applicable to this point: "If a man is sent for to extract a thorn which might be pulled out with a pair of nippers, and through his misconduct it becomes necessary to amputate the limb, shall it be said that he may come into a court of justice and recover a fee for the cure of the wound which he himself caused?"*

The law places no limitation on the fees of professional men other than that they be reasonable. Within this rule a practitioner is allowed certain discretionary powers, and may charge more or less, according to his own estimate of the value of his services. A dentist of great eminence may be considered reasonably entitled to a larger

† Ord. Jurisp. of Med. § 37.

‡ *Basten v. Butter*, 7 East, 479.

* *Kannen v. McMullen*, Peake's N. P. C., Vol. I, 83.

fee than one less eminent, especially after it has become publicly understood that he expects a larger fee, as the party employing him must be taken to have employed him with a knowledge of this circumstance.† Custom, the character of the service, the estate of the patient, are other considerations which may be considered by a dentist in determining his charges.

It is only when the charges are plainly unjust that a court will interfere to reduce them. "Though professional men," says a learned judge, "are entitled to a fair and liberal compensation for their assistance, there are certain claims which they affect to set up which, if unreasonable or improper, it is for the jury to control. Very recently, in New York city, a jury reduced a dentist's bill from \$445 to \$67. Among the items in the bill was a modest charge of \$40 for repairing a bridge of his own making, and which, as it appeared in evidence on the trial, had always given trouble.

In making out his bills a dentist should be as specific as possible in his charges. A gross claim of \$13 for medicine and attendance, which a physician sought to enforce at law, has been held bad, because too loose to sustain an action.* But if payment of the bill is refused, he is not restricted to its items and precluded thereby from showing what his services were reasonably worth and recovering sums larger than those charged. Thus an attorney has been able to collect \$500 for services for which he had only charged \$150 in the bill he rendered his client, and which the client had refused to pay. On the hearing before the referee the defendants' counsel put in evidence the bill which had been sent him by the plaintiff, and contended that the plaintiff should recover only the sum therein specified; but the referee decided otherwise, and the court affirmed his opinion, saying, in effect, that the plaintiff's own estimate of the value of his services contained in the bill he had rendered the defendant was high evidence against himself; but it was not in the nature of an estoppel to preclude the truth. Had the defendant paid the bill when it was rendered, it would have been an accord and satisfaction of the services, though less than their real value; but the defendant chose to litigate, and the question of value was thus opened to proof as a question of fact.†

Where no notice to the contrary is given, a dentist will be presumed to make similar charges for similar services and to adhere to what has been his customary price in his former treatment of a patient.

Artificial teeth are considered necessities, and for that reason the husband is liable for payment when they have been furnished his wife,

† Willcock's Medical Profession, 111.

* Hughes v. Hampton, Const. Rep. (S. C.), 745.

† Williams v. Glenny, 16 N. Y., 389.

particularly if she retains them with his knowledge and he has ever given the dentist who supplied them reason to believe from previous conversations with him that she was authorized to contract for them.†

So the filling of teeth for their preservation, to give relief from pain, and to prevent its recurrence, is a necessary for which an infant is liable.§

In England it has been held that a contract to make a set of artificial teeth is a contract for the sale of goods, wares and merchandise within the meaning of the 17th section of the Statute of Frauds, which provides that no contract for the sale of such things, if for the value of £10 and upward, shall be valid unless there be a delivery and acceptance of the goods or a part thereof, or an earnest given in part payment, or some memorandum in writing of the contract signed by the party to be charged, or by an agent thereto lawfully authorized. It appears a lady had ordered two sets of artificial teeth, which were to be fitted to her mouth. When the teeth were ready the dentist wrote requesting an appointment for the purpose of fitting them; in reply he received the following note: "My Dear Sir: I regret after your kind effort to oblige me that my health will prevent my taking advantage of an early day. I fear I may not be able for some days. Yours, etc." Soon after the patient died, and the dentist sued her executors for twenty guineas, the agreed price; but failed to recover. The court held that as by the terms of the contract the teeth were to be fitted to the patient's mouth, and as this, through no default on her part, was never done, her executors were not liable for work and labor performed and materials supplied. Nor was the note considered a sufficient memorandum to satisfy the requirement of the Statute of Fraud. Counsel for the plaintiff argued that the deceased had contracted for the skill and labor of the dentist, and that the materials supplied were merely auxiliary to the work and labor done; but the court rejected the proposition that the value of the skill and labor as compared with that of the materials supplied is the true criterion by which to decide whether the contract be for work and labor or for the sale of a chattel, and said that "the case bore a strong resemblance to that of a tailor supplying a coat, the measurement of the mouth and the fitting of the teeth being analogous to the measurement and fitting of a garment."* The New York Statute of Frauds, which is very similar in its statement to the English statute, has received in this particular aspect a different interpretation; the rule here is, that when the thing bargained for is not *in esse* at the time of making the contract, could not

† Gilman v. Andrus, 28 Vt., 241.

§ Strong v. Foote, 42 Conn., 203.

* Lee v. Griffin, 1 E. B. & S., 272.

then be delivered or accepted ; but is afterward to be constructed or manufactured, the contract is held to be one for work and labor ; a dentist in this State, therefore, may maintain an action against his patient for the price of a set of artificial teeth, counting on his agreement with him as a contract for work and labor done and materials supplied.

[Concluded in our next.]

TREATMENT OF PULPLESS TEETH.

DR. WM. H. ATKINSON.

In reply to your query respecting pulpless teeth, allow me to say that I never kill babies for the sake of having a funeral, and therefore have little to say respecting the treatment of teeth whose pulps have been purposely destroyed. When a patient applies for the treatment of a pulpless tooth, I first ascertain the existence or non-existence of pericemental inflammation, acute or chronic.

Where there is no tenderness on occlusion, I proceed to clean out and thoroughly disinfect and fill at the same sitting. I do not think it so vitally important, as some do, to select a special disinfectant. The one I have used longest and with most satisfaction is oil of cloves and wood creosote, equal parts, thoroughly pumped into the canal, after drying out of which with a dressing needle, wrap in bibulous paper, I am careful to fill clear to the apex with gutta-percha in chloroform.

If there is an open fistula, the pumping of the creosote and oil of cloves will appear at the orifice as evidence of saturation of the locality with the remedy. Then it is not so important to be careful in drying with bibulous paper, as the liquid gutta-percha, when properly inserted, will force the disinfectant through the canal of the root and fistula to its orifice.

I am careful, under these circumstances, to use a sufficient quantity of the gutta-percha to exude from the orifice to form a bulb on the exterior, which I allow to remain till the next day, when, taking hold of the button with gentle traction, the gutta-percha will separate at its weakest point (usually at the apex of the root), and then the fistula will heal and leave the end of the root in an aseptic condition.

The only difference in the treatment, where no open fistula exists, involves the uncertainty in packing the gutta-percha thoroughly without bubble entirely to the end of the root. The attempt to accomplish this is made by taking the measure of the length of the root by passing a small dressing needle, hook-pointed, through the foramen, and drawing back till it catches on the point of the root, marking the needle at the exact length, to allow the reduction of, say $\frac{1}{3}$ to $\frac{1}{8}$ in., on this measure transferred to a wheel-bur of proper size, which is to

be passed into the canal, leaving a shoulder against which the gutta-percha is packed with a needle large enough to stop from passing through the foramen, and wound with a little cotton, and allowing the liquid gutta-percha only to fill the canal beyond the shoulder to the end of the root. I always expect first-class results; but if, from any untoward circumstances, an abscess should form, it is a very easy thing to abort it where you have control of the case, and without removing your filling. It is an aphorism with me that when a root of a tooth is properly filled it is never necessary to remove that filling as a part of the cure of abscess. Even where by neglect an abscess has proceeded so far as to incite necrosis of the cementum or portions of the socket, all that is required is to freely open into the locality, bur out all the dead tissue, and leave to nature.

What I mean by aborting is to thoroughly incise the gum periosteum, alveolar plate, peridontium and cementum to the end of the root, being careful to cut far enough from the end and down on to the root to completely open up the seat of the incipient abscess without withdrawing the knife. Make three plunges, one directly over the end of the root and in line with greatest strength, and one on each side of the apical space to thoroughly open the affected territory. If the instrument has been perfectly clean it is not important to insert a tent in the opening, as these cuts uniformly heal by first intention. But to be doubly certain when there is doubt, you may insert a tent of cotton or bibulous paper tightly wound on a dressing needle, to the depth of the cavity (after dipping it in the oil of cloves and creosote), to secure a fistula for future use. Have some vinegar at hand to dissolve away the excess of creosote and oil of cloves about the orifice of the incision, to prevent it from forming a sore in the gum or on the lip. It may be well to say that when there is great tenderness or high inflammation of the pericemental membrane, with or without fistula, I proceed by tying a strong ligature (usually silk) around the neck of the tooth, forming a loop at its free end, through which to pass the handle of an instrument for the patient to pull on for the purpose of overcoming the tenderness and pain consequent on the pressure of the drill used in opening into and through the canal *and apex* into the abscess.

If a fistula be open, it is only necessary to pump the kreo-clove through, leaving the cotton piston in place and dismissing the patient, after neutralizing with vinegar, when at the next sitting the soreness will have disappeared and you can proceed to fill.

When there is no fistula, and the tenderness is very great, ligate the tooth with silk and put traction on the tooth as before, and open through the gum and other tissues to the point of the root, and continue to completion of the operation as before.—*Archives of Dentistry.*

RUBBER, AND HOW TO USE IT.

DR. D. GENESE, BALTIMORE.

Read before the Joint Meeting of the Southern and American Dental Association,
Louisville, August, 1888.

We are not justified in condemning rubber, as has been done in many instances, because it has been proved to cause sore mouths. But to remove the cause and to teach the young students how to use this useful material so as to obtain the best results, we must take into consideration the immense benefit conferred on the community by it. Many years must elapse before we find a substitute for it. It remains our duty, as long as dentures of rubber are in use, to make that class of work in the best way possible.

I have seen rubber sore mouths, and I have seen sore mouths from every material used by us. It only requires perfect work from the modeling to the finished plate, and any material will do good service.

I have replaced gold and even continuous gums by a rubber plate, with comfort to the patient. We have seen rubber plates doing good service for many years.

What is the cause of the failure in them, and what will give us success?

Failure will result from rubber that has come in contact with oily substances before or during the process of vulcanizing. This will leave a soft, spongy plate instead of the dense, horn-like rubber, as heat will dispel the mischief, and the plate will have an affinity for all greasy substance. This will soon decompose, and rubber sore mouth will be the result. This is no fault of the rubber.

Modeling has much to do with rubber failures. Only the finest plaster should be used, and this should have every attention in mixing.

Do not mix water with plaster, but let the plaster be dropt into the water a little at the time. When a sufficiency is so treated, allow every particle to settle to the bottom, and when all traces of air are gone, pour off the excess water and a creamy semifluid will remain, easy flowing and without air bubbles. No excess of water and no plaster devoid of its water of crystallization, thereby making defects in models that prove pits, to break into when rubber is prest.

Models should not be dried except in warm air, nor used for two days after the casting.

We now have to consider flasking. Small ones are to be condemned. They should allow of a good sized model to be placed into them without making it thin, causing it to break in packing or screwing up, and consequently deranging the work.

Scalding out wax is our most important work in rubber cases. Many failures, both in plates and loose teeth, on rubber plates, are attributable to oily wax and parafine being left in the molds or on the pins and backs of teeth.

Steam at high pressure can be relied on to displace this enemy to vulcanite.

Our next treatment is keeping the molds hot to facilitate placing the rubber into them and around the teeth. And lastly, but not the least, preparing and heating the rubber for packing.

It is a well known fact that heated rubber will stick to hot metal. Therefore, if we have our models coated with tin foil and heated, rubber can be packed directly into place and kept there, but while the heat of the metal may be above 220, rubber is manageable about 200. I have apparatus to control heat on rubber and models.

If rubber is allowed to be in contact with dry heated air, such as placing it in an oven, it has already begun to take the form of vulcanite, and the particles will not adhere readily, while the resistance of the hardened surface to pressure is frequently the cause of fractured models.

Again, in deep bite sets, rubber laid in pieces and only adhering at the edges will not be pressed into a solid form, the air shut in will expand and often burst all the plaster casings, shrinkage taking place in ratio, and workmen wonder what caused the results.

While rubber is about the commonest material used in dentistry, nothing claims greater attention at our hands in working out the details to make it a success for dental plates. Like its prototype in the office, amalgam, we cannot exclude it; therefore, it is our duty to give it the best treatment possible.—*Southern Dental Journal*.

Some of our contemporaries complain of various features of our journal. But for some reason subscribers must like it, or it could not be so emphatically the journal of the profession. We do not mean to boast. There are other journals superior in their sphere of original exhaustive essays. Every thoughtful, progressive, investigating dentist should not be without one. We suppose the reason the ITEMS OF INTEREST is more generally read by the dentists of the United States and Canada is because it is eminently practical, and its articles easily understood. As a dentist of some eminence says in substance: "When the ITEMS comes I can take it into my companionship as a familiar friend. It seems to know my failing and my needs, and it talks to me of my every-day practice, so that I rise from its instructions a wiser and a better man. It also interests my patients. I would hardly know what to do without it on my centre table."

THE DENTAL USE OF ARSENIC.

DR. GEO. A. MILLS, BROOKLYN.

The challenge has been made that any one produce a good and sufficient reason why arsenic may not be judiciously used for the destruction of the pulp. This challenge came during the debate on the Gardner case. I think Dr. Atkinson has been reporting case after case, for some months past, culled from the large number of surgical cases he has been accumulating from day to day, and he stated point blank that many of these cases were directly traceable to the effects of arsenic. He has been replied to in several instances by practitioners, "that they did not believe it," etc. The time is not far distant when his testimony will come to be of value, not only to us, but to our patients who are the present sufferers. It has been asked "how it happens that he sees so many such marvelous cases." It can be answered and truly, because he has acquired a reputation for the successful treatment of these multitudes of ugly and distressing conditions, which would seem almost, to an eye witness as they flock into his office (on an average from 12 to 20 cases per day) that they were alarmingly on the increase. I am sure from what I have seen myself at his chair, that he has not overstated the truth, when he tells us in our meetings, that hundreds are carrying necrosed bones about in their mouths, and they do not know it; and he might truthfully have said, neither do the dentists know it.

While writing this paper, a very valuable confirmation has come to my notice in the proceedings of the Odontological Society of London. I copy the remarks of Mr. Charles Tomes, and I think all will see its relevancy in connection with what I have just said. I copy from the December number of the *Miscellany*, 1879:

"The occurrence of one or two instructive failures in my own practice has suggested that, though I have nothing new to put forward, it would be worth while to take stock of our actual solid knowledge on the subject, so as to realize what is fact and what is conjecture, and thus have a better standpoint from which to speculate on the causes of non-success. * * * * * The recent conclusive researches of Heitzmann on bone, extended by Bodecker to cement, have shown that there is a protoplasmic network occupying all the canaliculi and lacunæ of living bone and cement, and that this protoplasmic network entering it from its surface, brings it into an intimate and vital connection with the periosteum; in dead bone this has utterly disappeared. This protoplasmic network in the cement becomes continuous at many points through channels long since described, with the protoplasmic fibres of the dentine; perhaps this connection may be of much practical significance.

"A human tooth is therefore brought into continuity with the rest of the organism by two channels: by its alveolo-dental periosteum covering a great surface, and by its pulp constricted down to one or more small orifices; and these connections seem to bridge over the gap and render living parts tolerant of comparatively dead tissues. That the periosteum alone may be an adequate connection we know from daily experience of dead teeth successfully treated, teeth which have been knocked out and replaced at once, and teeth rendered practically pulpless by calcification of their pulps, though these are apt to be treated as foreign bodies and cast out by absorption of their roots. * * * * * I send round an upper molar which I treated unsuccessfully for weeks, and finally extracted; it exemplifies in an extreme degree a condition which I believe to be absolutely hopeless.

"When it was extracted it was merely rinsed in a basin of water, and never touched since. Everywhere the periosteum had ceased to be adherent to it, and it was to all intents and purposes an absolutely foreign body, held in by mere adaptation of its roots to their socket, but without a vestige of organic connection. It was, so to speak, a sequestrum; the protoplasmic network of its cement was dead and gone, and, unless I mistake, in no way could such a tooth have been retained for any time. Of that tooth I can give you a complete history. Three years ago, though there was no exposure, I placed a little zinc-oxychloride in the deepest portion of the cavity, and filled with amalgam over it. All went well for two years, when pulp irritation came on for no apparent reason. Failing to otherwise allay it, I devitalized with arsenic, experiencing some difficulty in doing so, owing to secondary dentine in the pulp. Contrary to my usual practice, I applied a further application of arsenic after the body of the pulp was dead, when it remained alive only in each of three roots; the root pulps were afterward most carefully and thoroughly removed. It was filled with creosote and wool in the roots, was never absolutely comfortable, was opened up and treated repeatedly, and at last, at the patient's desire, there being some neuralgia, extracted, though prior to its removal there was evidence merely of slight irritation in the socket. There was nothing to lead me to infer the complete detachment of the periosteum, and there was never at any time a vestige of pus formed. I am inclined to think that the arsenic may have destroyed not only the pulp, but reached the protoplasmic network of the cement. Doubtless we may often have to deal with partial death of this protoplasm, and may then sometimes succeed in retaining the tooth; death of the cement protoplasm on any considerable scale I believe to be an absolute bar to success. * * * * *

Where we have a dead or dying cement, failure, it seems to me, is certain. Since I have thought on the subject in this light, two well marked cases of necrosed cement are all that I have seen. In each arsenic has been applied more than once and left several days in the teeth.

"There is much room for surmise and still more for observation on this subject. We do not know in the least what becomes of the protoplasmic content of the dentinal tubes when a pulp is removed. Do they decompose and liquefy, and, if so, may not their decomposition run on the cement protoplasm with which they have many communications? Or may not the effect of arsenic travel along them in this direction, as we well know it used to in the other (toward the pulp) when it was formerly used to allay the sensitiveness of dentine?

"If so, we should be very careful to minimize the time of its application and scrupulously keep it out of roots. * * *

"To recapitulate, I believe that in the treatment of dead teeth we have to combat not only the troubles which arise from the escape of septic matter from the apex of the root, which every body recognizes, and in a way understands, but also disease of the alveolo-dental periosteum, induced in some other way, which is less frequent but more intractable. If the surmise that the alveolo-dental periosteum does become diseased in other ways than by the escape of septic material from the apical root canal be true, it is difficult to see by what channel evil influence may approach it other than by the protoplasm of the cement. This, again, would hardly be reached, except through the medium of the contents of the dentine tubes in the dentine of the root. Such an evil influence may, perhaps, be septic; *i. e.*, the putrefaction of the soft parts of the dentine may poison those of the cement, and this would seem to be the most likely thing; or the destructive influence of such an agent as arsenic may be propagated through the same tissues and bring about similar results in the cement. In either case we shall have to look to the dentine of the root as the proximate cause of the mischief."

Now every one who can intelligently discriminate can readily discover a warning, and no intelligent dentist can whisk away the conclusions based on the demonstrated knowledge brought out by the researches of Drs. Heitzmann and Bödecker, and confirmed by so intelligent a co-worker as Mr. Tomes. How many, in the light of these *facts*, will allow themselves to stultify their convictions, which such knowledge gives? I think but few, if any.—*N. Y. Transactions.*

FURNACES.

DR. L. P. HASKELL, CHICAGO.

The chief requisite in doing continuous gum work is the furnace. There have been constructed for the purpose a variety of devices, coal or coke, gas and gasoline.

Having given all a thorough trial, I find there is nothing suits my purpose so well as a coke furnace, and of these the old "Boulter" make, No. 2, is best adapted to the purpose.

My reasons are these:

I must have a *good-sized muffle*, so as to have plenty of room to handle the largest cases. Also for the purpose of drying out a case for repairing, which I invest all over one-half inch deep in plaster and asbestos, and place in the muffle before lighting the fire, to remain till red. This necessitates a large muffle, and nothing less than a No. 2 "Boulter" will answer for large cases.

Then I want plenty of room for coke without being compelled to break it very fine.

I prefer coke to coal; I had used it for twenty years, because there is no danger from "gassing," is more easily handled, and always easy to get, which is not true of Lehigh coal, which is the only kind of hard coal fit to use.

My objections to gas and gasoline are the danger of gassing, and the trouble of using. I say this after experience with both.

A few words as to how to arrange and manage a coke furnace. The first thing is a good draft.

Have a table made, two feet high, with board all around, the height of two layers of brick. Fill in the brick with mortar, and cover over with galvanized iron nailed to the edge.

Cut hole in the chimney the hight of an elbow, and leave some space around the elbow for the escape of heat from the outside of the furnace.

Have a square frame of wire made that will enclose the sides and top, including the elbow, setting against the chimney; a separate frame for the front, with openings for coal-hole, muffle and draft-stopper.

Cover this with asbestos cloth, which can be procured in sheets 42 inches wide at a cost of 50 cents.

The side draft-stoppers can be closed permanently, the front one being sufficient.

Make a slot in the front of the table in which to place an upright, 3 inches wide, on which to support a shelf of iron, resting the other end on the muffle opening. On this the case can be placed to heat up gradually, and to be removed after the case is in the muffle.

With the above arrangement, baking can be done easily and satisfactorily, and with no discomfort. My furnace is at the end of my work-bench, four feet from the nearest drawer, and yet we suffer no discomfort from the heat, even in summer.

HOW SHOULD DENTAL SOCIETIES BE CONDUCTED?

DR. L. P. BETHEL, TOLEDO, O.

Read before the Northern Ohio Dental Society.

In one, more time is occupied each year in revising and discussing the constitution, by-laws, or minor points of parliamentary ruling, than in the beneficial work of the society. In another there is no order, and even the president is not sufficiently posted on the rules of order. In consequence everything goes slow and at least one-third of the time is wasted. At another the papers are taken up miscellaneously, and perhaps three or four read before any discussion is allowed. Some societies have no clinics. In others some of the officers and committees are so negligent that little preparation is made before the time of meeting; this brings confusion and dissatisfaction.

How should they be conducted? Let us first ascertain the object of these societies. We assume that it is to promote the interests of the science and art of dentistry, and to cultivate good fellowship among the members of the profession, that the results of experience, discoveries, and inventions may be for the common good and mutual benefit of all. To accomplish this end, a society should be made attractive in some way to induce dentists to attend, for instance, by having good clinics in connection with the regular transactions.

Since clinics have been more thoroughly introduced into our societies, men who before could not have been induced to attend a meeting have been attracted and expressed themselves as feeling amply paid for attending, by these alone. A certain dentist made this remark to the writer in regard to clinics: "Now this is what we need; to see the actual work. One practical demonstration is better than a dozen descriptions, for it is so much more impressive. It is the practical more than the theoretical that the majority of dentists appreciate in these days."

In nearly all societies much time is taken up in wrangling over unimportant subjects or bringing up points in the discussions that have no direct bearing on the subject under consideration. These useless debates are tiresome, and detract much from the interest of the meeting.

In the elections there should be no strife for office. All business of the society should be disposed of with as little ado as possible. It would be well for all to post themselves on parliamentary usages that misunderstandings may not arise and hinder proceedings.

The society should make sure of enough material in the way of papers, clinics, etc., to make the meeting attractive, interesting, and profitable. If the regular appointed committees cannot attend to it all, let there be sub-committees, and a portion allotted to them.

Let the work be entered into more combinedly and fraternally.

Let each member go to the meeting, not with the intention of domineering, but with the feeling that he is there to learn as well as to teach. Remember that others have as good a right to their opinions as you have to yours; for after all they may be right and you wrong.

There should be more hospitality and fraternity. Take the strangers and timid members by the hand, welcome them into the ranks, and show them you are glad to see them there. Encourage the young men in the profession; put them into the harness and get them interested. Of the eight or ten societies I have attended within the past year, in five different States, but one (a State society) showed hospitality to any appreciable degree.—*Ohio Journal*.

DISAPPEARANCE OF OLD-FASHIONED DISEASES.

The dodo, which one time flourished on the earth, and in its clumsy dodoish fashion enjoyed the good things of life, has passed on into that night of oblivion which before had closed down on the ichthyosaurus, the megalosaurus, the mammoth, and others of the "Fall of '49 and spring of '50" pioneers on the earth.

And now comes the sad news that the great auk likewise has as a species passed on to that land from whose bourne neither auk nor homo ever returns; and passing on, has, for lack of heirs, left his property to the care of the public administrator, and his bones to the green-spectacled naturalist. Not without reason was it said that "all things pass away."

And now comes also (alas! and alack!) a like fate to many of our old friends in the classification of disease. The editor has watched, with that curious and mournful interest which is one of the vested rights of a slowly whitening beard, the process of evolution which is gradually yet surely going on, and which promises to leave him stranded like some ancient hulk amid the clustering shoals of an old-time and antiquated medical nomenclature. Physician and patient seem to vie with each other in hastening the process.

Old fashioned headache is going the way of the auk and the dodo. Now, when John Smith bumps his head or happens to have eaten too much dinner, or has a morning thirst for iced soda, because, the night

before, he looked "on the wine when it is red," he no longer has the headache; but is threatened with congestion of the brain.

Mrs. John Smith, who was up too late at the ball and indulged too long in the german, and has as a penalty what her mother would have called a backache, is suffering from spinal congestion.

The baby, John Smith, junior, who happens to have a sour stomach and needs a fresh diaper a couple of times in the morning, is suffering from dysentery.

Miss Violet Minerva Smith, who has perchance a canker spot in her mouth or a yellow cheesy pellet protruding from one of the follicles of either tonsil, or maybe a small ulcer, has of course diphtheria. It would not be fashionable to have anything less.

Colic—our matter-of-fact forefathers tersely called it belly-ache—that is rapidly going the way of the auk, leaving in its stead congestion of the bowels.

Nervous prostration—oh, the unspeakable boon it is becoming to patient and physician! Mrs. Sophronia Fitz-James, who fully believes that labor is a curse, wields the broom for an hour when Bridget has left without warning, and straightway has an attack of nervous prostration, and her husband goes out to the restaurant for his dinner.

And the husband, Algernon Sidney Fitz-James, finding the labor of supporting his heels on the edge of the office table to be too exhausting as the warm days of summer advance, has an attack of the same convenient trouble and goes off for a holiday; while clergyman and lawyer and official (physicians are not exempt) each find the seductive and insidious malady stealing away their relish for the toil of life. It is worse than the chloral habit.

In the midst of it all, we—poor gray-bearded fellows in the ranks of the profession who were trained to call a spade a spade—look on in a sort of hopeless dismay as our old standing ground of medical nomenclature and pathology slowly turns into a quicksand under our feet, and—"I suppose it is neurasthenia," they will exclaim as we drop aside from the fray.

The elder Professor Silliman was one day present at one of his son's lectures. The son, who, in his formative stage of growth, had swallowed the Latinized part of the English language and had no room left for any other, happening to meet with a mishap in a chemical experiment before the class, whereby was produced a sudden explosion of inflammable gas, started for another room, stating, in explanation to the class, that the flame had excoriated his digits.

"Boys," said the elder Silliman to the class, in an awe-struck tone, "Benny means that he has burnt his fingers."—Editorial in *Cal. So. Practitioner*.

DEVITALIZED TEETH.

A Resume.

DR. H. H. JOHNSON, Hawkingsville, Ga.

(In Georgia Dental Convention.)

The difficulties surrounding the treatment of devitalized teeth tax the skill, the ability, and the utmost resources of the dental practitioner; it often looms up as a stumbling block in our path. The essayist in his treatment, when he devitalizes a tooth, waits a week after making the application, giving time for the dead tissue to slough, which it will do at the apex if time enough is given. Then adjusting the rubber dam he cuts freely through the crown surface, to gain access. A fine Donaldson nerve cleaner is then pushed cautiously into the canals and given half dozen turns, when the nerve will be caught by the barbs and can be brought out entire in the majority of cases. After cleaning as thoroughly as possible with this, he enlarges the orifice with a large sized Gates Giddeon drill in the engine, going about one-third of the way down. He does not claim it will follow a curved canal, but it will come as near to it as any thing can, and if cautiously handled there is very little danger of breaking. It should be frequently withdrawn and cleaned, to prevent clogging, or it may get fastened in the canal and twisted off. With a smaller size he enlarges nearly to the apex, if straight. If it turns hard he "suspicious" a cure and goes no further. After the upper third has been enlarged, the remaining debris is readily cleansed away. He gives several reasons for enlarging the canal: 1st, the canal cannot be filled if too small for the passage of a broach; 2d, it cuts out all dentine of which the tubuli may be infiltrated, with putrescent water, and 3d, it makes the canal round and easier to fill. After cleaning, he dries with warm air, and pumps full of eugenol or eugenic acid, using this exclusively.

If there is no fistulous opening he makes one, and rarely treats an abscess; nature will attend to that if the cause is removed.

If the tooth has been devitalized for some time, and decomposition has set in with incipient pericementitis, he is more cautious. He cleans thoroughly at the first sitting, and fills the roots with cotton saturated with eugenol, stopping the crown cavity to exclude the moisture, giving instructions to call at once if any soreness follows. If it is all right at the end of a week or ten days he dries with warm air and fills; never allows water or saliva to enter the canal after the first cleaning unless the apical foramen is unusually large and moisture has entered there. Microbes and spores do not thrive in a dry locality. In the latter case the cotton in the root is frequently changed, with fresh medicine to prevent mephitic gases. In this class of teeth the

pumping motion must be avoided or moisture will be drawn in. If there is an opening for drainage immediate filling is permissible. He fills the canal with oxychloride, which is disinfectant, and has a drying effect on the dentine.

He uses eugenol exclusively in the treatment of roots, because it has no escharotic qualities, does not coagulate albumen, creates no irritation if pumped through, has an odor of cloves, which is not objectionable; it penetrates the tubuli and checks putrefactive changes; it has all the good qualities of carbolic acid and none of the bad.—*Dental Register*.

History is Repeating Itself—The Trades' Unions.—

The following paragraph from Lane's "Arabian Nights" reads like a modern instance:

"We in our country are forty masters, not one more or less; and when one of us dieth, we teach his son, and if he leave not a son, we are deficient by one. When one leaveth two sons, we teach one of them, and if he die we teach his brother. Thus our trade is strictly regulated; and we know not how to dye any color but blue alone. So Aboukir, the dyer said to him, know that I am a dyer, and I know how to dye all colors. I desire that thou wouldest take me into thy service for pay, and I will teach thee the art of dying all colors, then thou mayest glory therein over all the company of dyers. But he replied: We allow not a stranger to enter our trade ever. Aboukir said to him: And if I open for myself alone a dying shop? The man answered him: Thou canst not do that ever. And thereupon Aboukir left him and went to the second, and he said to him as the first had said; and he ceased not to go from dyer to dyer, until he had gone the round of the forty masters; but they would not admit him either as a hired servant or as a master. He went also to the sheikh of the dyers and informed him, but he replied: We do not allow a stranger to enter our trade."—*Power and Transmission*.

To Harden Plaster of Paris.—It is only necessary (says *Pharmaceutische Zeitung*) to add five or ten per cent of hydraulic cement to the plaster before wetting.

In a later issue of the same journal, a correspondent writes that five per cent of sulphate of potassium, in finest powder, intimately mixt with the gypsum, will give it even a greater degree of hardness than will result from the addition of hydraulic cement.

MONDAY

May the New Year be a happy one to you; happy to many more whose happiness depends on you!—*The Chimes*.

HOW MICROBES DECAY TEETH.

DR. C. N. JOHNSON.

The waste product of the micro-organism is the active agent in causing decay. These waste-products are almost uniformly poisonous, especially to organism that excretes them. For instance, if the waste-product of any organism be retained within the organism the result will be the death of that organism. The waste-product of man, urea, remaining in man will cause the death of the man; and on this hypothesis the theory might be advanced that the micro-organism producing lactic acid would die in its own excrement, and thus limit its action. If there were no mitigating circumstances, the organism would simply produce enough lactic acid to cause its own death in the cavity, and that would end the decay. But we find in the cultivation of this micro-organism that, if lime be added, the lactate of lime is formed, and that is not a poison to the organism. The lactate of lime eliminates the poisonous material which destroys the plant, and gives it an opportunity of working away and producing lactic acid incessantly. In the process of dental caries the tooth supplies the lime, and so long as the organism is fed with starch or sugar from without there is nothing to interfere with its continuous action on the tooth.

The reason why some people are troubled with caries, and others, with teeth apparently no better developed, are not, while all are exposed to the same conditions, is explained in the following way by Dr. Black: "The fluids of the body are made of many chemical compounds of which we know little. In some mouths the fluids are not conducive to the life of the micro-organism causing dental caries, while in others they are; and thus we find in two mouths such a difference in the liability to decay. On this hypothesis we can account for hereditary dental caries. The idiosyncrasy favorable to the propagation of the streptococci family may be transmitted from one generation to another." Here, then, we have a theory which accounts for many of the phenomena that have puzzled us all in practice. It accounts for the fact that where we have two patients with teeth seemingly alike in quality, and where equal care is taken by each, the one is vigorously attacked by dental caries, while the other is comparatively free from it. It also shows us why it is that an individual's teeth may remain for years free from decay, and all at once, without any apparent cause, yield to an attack which threatens to undermine the whole denture. It shows us why a person may be in perfect physical condition in every other respect, and yet have decay of the teeth. It explains many of these remarkable circumstances which can not be satisfactorily accounted for in any other way.

On this very theory do we base the future hope of dentistry. When it is recognized that there are certain conditions of the mouth that are not conducive to the development of the micro-organism causing decay, can we not hope, in view of a future and a better knowledge, to bring about these conditions, so as to put a check on the progress of the disease? Must it be considered utopian to believe that, when science has touched the dark places in our professional knowledge, and brought to bear on them the purer light of a grander day, we may employ prophylactics instead of remedies; that we may prevent decay instead of treat it; that we may hope, by attention to the patient from infancy to old age, to preclude the possibility of suffering from that disease which Burns has so aptly called the "hell o' all diseases?"

In conclusion, gentlemen, let us ponder well on the possibilities presented by the germ theory of disease as it relates to dentistry, and let us not stop this side of a scientific knowledge which will enable us to employ preventives in the treatment of dental caries. In our profession, young in organization, buoyant in hope, fresh in the vigor of a true professional spirit, there is no other possibility of so weighty importance as the accomplishment of aims directed in the tendency to which I have alluded; and let me say to you here to-night that the genius who evolves from the mighty labyrinth of the chemical world, that potent factor which shall act as a check on this disease, shall win for himself, not alone the love of his brothers, not alone professional renown, but, what is better, the lasting homage of a long-suffering humanity.—*Dental Review*.

Copper in Amalgam.—We know many of the old amalgams contained copper, but in small quantities. And when we find a *few* isolated cases, if you please, that point so conclusively to the galvanic excitation of the salivary glands by these, what may we reasonably expect from the use of an amalgam made *wholly* from pure copper and murcury, either of which alone may produce that result?

Gentlemen, touch *pure* copper amalgam as tenderly as you would a "Western boom." Its antiseptic properties may preserve teeth, but may kill your patient.—*Dr. I. D. Pearce*.

Advertising by Dental Colleges.—The following resolution was introduced in the Central Illinois Dental Society by Dr. C. R. Taylor:

"*Resolved*, That the methods pursued by dental colleges in advertising for patients are disreputable, unprofessional and demoralizing to the dental profession."

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

At the annual meeting at Louisville the following resolutions were adopted:

RESOLVED, That hereafter a delegate representing a college of this association shall be a member of the teaching faculty of such college, and shall present properly executed credentials specifying his authority to represent and act for such college, before he shall be entitled to vote on the questions before this association.

Resolved, That it is the sense of this meeting that the course of instruction in all colleges of this association should be increased to three years of not less than five months each, and that the delegates shall submit this question to their representative faculties or college boards, and reports of their actions be made to this association at its next annual meeting, in order that final action on this question may be had.

Resolved, That where, from sickness or death in his family, a student has been prevented from taking his intermediate examination and from obtaining his certificate from the institution where his first course was attended, such student may be examined for entrance to the senior class of any college of this association upon presentation of a certificate from the Dean or Secretary of the school at which said student attended such first course, and assenting to such examination.

The following resolutions were introduced, and will come up for consideration at the next annual meeting:

RESOLVED, That no student shall be premitted to graduate until at least twenty-four months after matriculation.

WHEREAS. It is the sense of this association that less than two years of study and instruction is insufficient to properly prepare anyone for the practice of dentistry as demanded by the progress of the times, therefore

Resolved, That at least two years of *bona fide* study, and attendance upon two full regular courses of instruction, in separate years, be required before graduation.

Resolved, That after the close of the scholastic year of 1889-90, attendance upon three regular winter courses of not less than six months each, held in separate years, be required of students by colleges of this association before examination can be had for graduation.

Other resolutions were also introduced, but the foregoing comprise the most important ones that are of general interest.

The following officers and committees were elected for the coming year: President, A. O. Hunt; Vice-President, L. D.

Carpenter; Secretary, J. E. Cravens; Treasurer, A. W. Harlan. Executive Committee, Frank Abbott, J. Taft, S. H. Guilford. Committee *ad interim*, Thos. Fillebrown, J. Y. Crawford, T. W. Brophy.—*Western Dental Journal*.

TEETH WITH DEAD PULPS, WITHOUT FISTULE, AND THE FILLING OF ROOTS.

DR. C. T. STOCKWELL, SPRINGFIELD, MASS.

My treatment of teeth with dead pulps, with or without fistule, has, for some years, been based on the theory that, practically, we have to deal with a *single* agent,—sepsis.

To simply "vent" is often sufficient to afford relief: but if a thorough elimination of debris can be accomplished, more sure and quicker results are, in my practice, obtained. Mere instrumental elimination is not enough. Nothing short of the solvent and mechanical action of H^2O^2 is sufficient; and this should be continued so long as application to the pulp canal results in its peculiar manifestations of action.

According to my own experience with blind abscesses we are "warranted in proceeding to fill the root" whenever we have secured certain conditions, whether a few minutes or a few days time is required to bring about these conditions; and when once obtained, we may proceed to "permanently close the aperture through which any abscess *has had* vent or drainage" at once.

The method is practically the same as in the treatment of acute cases. Attention is first directed to the elimination of putrescible matter and the destruction of the septic agents, believing them to be the direct antecedents of the troublesome condition; and that if they are removed nature is left free to proceed uninterruptedly with the process of repair.

From a long and almost daily use of hydrogen peroxide, bichloride of mercury, iodoform and eucalyptol, I am convinced that they are not simply antiseptic, to use the word as heretofore generally understood, but that they are also *antipyogenic*, if I may adopt such a term. By this expression I wish to convey the thought that these remedies not only destroy the organisms of fermentation and putrefaction, but that they also destroy the pyogenic fungi that are the direct antecedents of pus formation. However this may be it affords the best theory that I am able to advance to account for the facts of my almost daily experience.

No species of bacteria finds a comfortable or favorable soil for its proliferation within the range of the penetrating and persistent influence

of eucalyptol and iodoform, especially when used in combination. And if the material used for root filling is composed, to any considerable extent, of iodoform, no one who is at all familiar with its action can conceive of its influence as being confined within the limits of the pulp canal. It extends to, and markedly influences the pyogenic tissues beyond the apical foramen.

If, however, the local or systemic conditions are such as to cause an apprehension of continued trouble, an artificial fistule may be established at once. Teeth with dead pulps, with a fistule, are cases that readily and promptly yield to the proper treatment. After treating hundreds of such teeth, by a method that was adopted some two years since, I am ready to "dogmatically" assert that a large majority of such cases may as well be treated and permanently filled at a single sitting as after a week of sittings—provided, of course, that the sitting is sufficiently long to enable one to secure the desired result; viz., the elimination of all such matter as a reliable preparation of peroxide of hydrogen is capable of acting on. I know of no better test for this condition than the non-action of this remedy. In the treatment of blind abscess, as well as of abscesses with a fistule, after the condition is secured when no action is manifested on the injection of H_2O_2 into the pulp canals, I am thoroughly convinced that nothing more or better can be done *at that point* other than to proceed, at once, to fill the root with a non-irritant and antiseptic material or combination of materials, one of which shall be iodoform, the powerful and almost ideal antiseptic. But, as previously stated, if there remains an apprehension of further trouble, it is easy to establish a fistule for drainage or vent, and also to gain direct access to the pyogenic tissues through which medicaments may be administered. By the use of cocaine or pure carbolic acid, applied to the gum, an incision can be made to the bone with scarcely any pain to the patient; after which an opening to the apex of the root, by the use of a sharp drill, is easily accomplished. If this is done as the first step in the treatment of blind abscesses, the gases that result from the action of the H_2O_2 on the contents of the cavity beyond the apical foramen—should there be one—will find ready escape, thus avoiding any pain consequent on the pressure of such gases on the surrounding tissue. The occasion, however, for forming a fistule in this manner, in my practice, I have found to be exceedingly rare.

I have used H_2O_2 with great freedom for several years with not a single instance of inflammation. I should consider acute inflammation, resulting from the use of a reliable preparation of H_2O_2 , would be about as exceptional as the phenomenon of poisoning by strawberries.

A Dry Mouth.—Some six months since I made a full upper and under set on R rubber for a lady sixty years old. On wearing the teeth a part of a day her mouth became so dry she could not spit. The mouth feels to the fingers as if she had used an astringent, and then she feels sick and cannot keep them in longer; after laying them out for a part of a day, the saline glands resume their normal condition.

Can you *personally write me* what to do to relieve the trouble, and very greatly oblige? Would *black* rubber or anything but gold plate answer, or correct the trouble?

Platteville, Wis.

W. H. DUFFENBACHES.

I Do Not Indorse Immediate Root-Filling.—We can never know that incipient abscess is not present, and, if it is, trouble will always follow such an operation. It is to be deplored that this practice is advocated to such an extent in our periodical literature, on account of the danger of leading young men astray. We should be more conservative in our practice. A root may be filled immediately if we have destroyed and removed the pulp ourselves; but even in those cases, I would prefer to leave it a day or two after removal, to destroy any living tissue that might remain in the canal. For this purpose I know of nothing better than carbolic acid, ninety-five per cent.—*Dr. T. W. Brophy.*

Copper Amalgam.—It seems not unlikely that the value of copper amalgam as a filling as compared with other amalgams is overestimated in America. That it has been placed on too high a plane as a caries preventive. Dr. St. George Elliot, of London, maintains that copper amalgam is not exempt from shrinkage or change of form in setting. This opinion is substantiated by experimentation and also by observation. Probably nine-tenths of the amalgams used in Great Britain are of the copper variety and dentists are called on constantly to remedy the decay which starts around them.—*Dental Review.*

Prominent Cuspids.—EDITOR ITEMS: I step forward to give my ideas of the case of R. P. Smith, regarding the cuspid of a girl fourteen years, in September ITEMS. Generally, I extract the first bicuspid. The eye teeth will come down in place themselves, without any mechanical appliances.

I have treated a number of just such cases successfully through this treatment.

O. T. WILSON, Ione, Cal.

Have the courage to acknowledge your ignorance rather than to seek knowledge under false pretenses.

The pulp of a tooth is not the extremity of circulation, nor a periphery of nerves; it is a ganglion, a bundle of nerves; it was not designed to be injured, nor intended to transmit pain; it has no tactile power, no sense of heat or cold; it is capable only of transmitting to the brain a sense of injury. If exposed it is in violation of nature's laws. The dental nerve excites only reflex pain—it is nervous reflex action more than any thing else, like that of the iris to which it is wonderfully near of kin; but we do not understand its pathological conditions as thoroughly as does the oculist. Common traumatism, or septic conditions may be relieved and the nerve restored to perfect health. We can diagnose a pulp-stone, but we cannot cure it. The oculist can do more than that with the iris. It is a fortunate thing for humanity that the life of the nerve is not of vital importance for the preservation of the tooth, but that pulpless teeth when properly filled may do good service for many years.—*Dr. D. D. Atkinson.*

Reform in our Spelling is a necessity. The weight of scholarly authority is on its side. Its outlook is promising. Some essential reform of English spelling is sure to come, and possibly in the experience of some now living. The greatest Englishman of the present century, Mr. Gladstone, tells us that if he was younger he would lead the movement. It is an eminently economical and rational movement, projected partly by the necessities of the language, and partly by popular needs.
J. W. HUNT.

Thinking and Working.—In our present system of education—now happily passing away for a better one—we want one man to be always thinking and another to be always working; and we call the one a gentleman and the other an operative; whereas the workman ought often to be thinking and the thinker often to be working, and both should be gentlemen in the best sense. As it is, we make both ungentle, the one envying, the other despising the other; and the mass of society is made up of morbid, unhealthy thinkers and miserable workers. It is only by labor that thought can be made happy; and the professions should be liberal, and there should be less pride felt in peculiarity of employment, and more in the excellence of achievement.
—*The Popular Science News.*

College education is largely a course of memory-stuffing looking only to the final examination and the coveted diploma. All the wisdom of Hippocrates will not make him a dentist unless he has a skilled hand; he must have the mechanical skill for a basis, and *time* is needed to cultivate and develop this.—*Dr. T. H. Coyle.*

For Our Patients

THAT OLD MAN CALLED A DENTIST.

O, I wish I could just be apprenticed
 To this *fling* old man called a dentist.
 I would make him sit down in his chair,
 And would tease him and torture him there,
 Till twixt filer and plugger and scraper,
 He would cut up a mighty queer caper,—
 This horrid old man called a dentist.

O, I wish I could just be apprenticed
 To this *boring* old man called a dentist;
 O, what great excavations I'd make,
 While never a breath should he take,
 While I burred to the quick for a filling,—
 Or his delicate nerves I was killing,—
 Of this cruel old man called a dentist.

O, I wish I could just be apprenticed
 To this *ham'ring* old man called a dentist.
 I would stuff his mouth full of old rags,
 And of torturing metallic old "gags;"
 Then his sensitive grinders I'd fill,
 And improv'ish him quite with my bill,—
 This grasping old man called a dentist.

O, I would that I could be apprenticed
 To this *jerking* old man called a dentist.
 I would stuff and inflate him with gas,
 Until for a baloon he could pass;
 Then with glee all the teeth I'd extract,
 Of this filing and boring and ham'ring and jerking old dentist.

"M. W."

A Squib is going the rounds of the dental journals, stating that Dr. Parmlee Brown, of Flushing, L. I., made a set of teeth for his cow. Pshaw! we know a dentist up in Oregon who made teeth for his whole herd of cattle, making sometimes a full set for a horse or mule. And we also know of a country editor who furnished his paper two years for a yearling heifer.—*So. Cal. Practitioner.*

A lady called on her dentist to have a troublesome tooth extracted and said:

"Doctor, I have very great respect for your ability as an artist, and yet I confess to no personal appreciation of your drawings."

"That, my dear madam," the dentist replied, "is because you form an opinion of them when in an unfinished condition. I am sure they will afford you great comfort and satisfaction after I have completed my touches."—*The Practical Dentist.*



WITHOUT PAIN.

PATIENT (jumping from the dentist's chair and crying with anguish)—“Oh! oh! oh! ee! I thought you said you pulled teeth without pain?”

DENTIST (smiling pleasantly)—“So I do; it don't hurt me any.”—*Texas Siftings.*

Prison Warden (to new convict)—“We assign men here to work with which they are familiar. So if you have any special line say so, and we will start you at once.”

Convict (who can scarcely believe his ears)—“Thanks. I can't begin too soon; I am an aeronaut.”

“Quackery,” says Dr. Holmes, “hobbles along on two crutches, the tastes of women and the certificates of clergymen.”

ADVICE TO MY PATIENT.

DR. I. W. COWLES, NEW YORK.

The teeth may be saved if the dentist does his work well and the patient does likewise. This statement is made in all candor, that the patient may comprehend his position; for, if he would retain his teeth, he must "make an effort"—he must, indeed, be a co-worker. When both the dentist and patient are faithful, there can be no result but success. Therefore, oh, reader! peruse, ponder and practice these directions: In the morning before breakfast, always brush your teeth—first with water only, then with powder. Powder should be used at least once a day. Without powder teeth cannot be kept clean. Using a brush with tooth soap just before retiring at night is a commendable practice. To brush effectually, place the upper and lower rows of teeth parallel to each other, the points of the fronts touching: then use your brush up and down the teeth between the gums, being not unmindful nor fearful to brush as well the gums as the teeth—thereby toughening the one and cleansing the other. Your back teeth need more brushing than your front teeth. Wisdom in this respect will be displayed should you show a partial care for the back and outsides of the rearmost teeth, above and below. After each meal use a quill tooth-pick, waxed silk floss, and rinse the mouth with moderately cold water. The intention of these is simply to remove food from among the teeth. Decomposed acidified food, animal or vegetable, is the worst enemy your teeth have now to encounter. The enemy, the combat and the prize are before you! Will you win or lose?

If I have learned how to place your teeth in their present condition of health, I have learned, also, how you may keep them so—as I, in my operations, have employed appropriate implements, so must you in yours.

These implements are always on hand for those who want them. I do not obtrude them on any one; I merely state the fact that they are attainable. Employ other means—trust to other implements if you will—but in that case absolve me from all responsibility.

We are about to part. Come and see me at least once a year for inspection. This is important. Should you then exhibit evidence of having performed your part of the saving process, a mutual gladness will be ours—that we have not labored and suffered in vain.

Finally—be earnest. If I have been faithful, skilful, efficient, it is because I have been earnest. Earnest thought—earnest will—earnest action—never fail! They are the synonyms of success. Eternal vigilance is the price of success with the teeth as with everything else.—*N. E. Dental Society.*

THE DENTIST CAUGHT THIS TIME.

It often happens that it is the confiding dentist himself that is sold instead of the patient. Instance the following: An Irishwoman called on a rural dentist to have a canine and two bicuspsids filled—the first with gold, the others with a cheaper material.

“Now,” said she, “dentist, I want yez to be as cheap as yer kin, for me ould man can’t affoord to pay much for fixin up tathe, ’n what will yez ax me to do the job?”

After the doctor had made an examination of the cavities, he offered to fill them for six dollars—calculating that four dollars would afford a living profit for the gold filling and one dollar each for the others.

“Oh, glory be to God!” exclaimed the patient, “that’s mor’n me owld man airns in a hull week, dentist; but if yez will do thim for three dollars, I’ll gin it and git yez lots of other worick besides; but I aint got another cint.”

It being exceedingly dull with the doctor, he finally consented to take the job, calculating that three dollars would pay for the gold filling and that, under the circumstances, he could afford to do the others for nothing. While he was adjusting the rubber dam, his patient said:

“An how much will that be apiece, dentist?”

“Only one dollar,” was the innocent reply, “and that is not half price.”

“Well,” she said “do the gowld one first, dentist, ’n make a purty job of it, that’s a gentleman.

The cavity in the canine proved to be larger than the doctor expected—taking four sheets of No. 4 gold to fill it and about three hours of his time. When he had finished this filling his patient said in a complaisant way:

“Yez must be tired oot uow, dentist, for ye look distressed—’n its meeself as is tired too, ’n its not the loiks of me that would worrick a nice gentleman to death, ’n i’ll just put off the others till I kum agin to-morrow.”

“But you must pay me three dollars now,” said the dentist, with considerable anguish of heart.

“’An its not the loikes of me as would chate yez out of yez wages,” she exclaimed, while tearing the dam from her teeth—“shure I’ll kum agin wen I git risted up,” and she handed the dentist one dollar, and took her departure.

The doctor is going into a mathematical calculation to find out the actual profit on work, and the faith he can put in his fellow beings—especially the women folks.—*The Practical Dentist.*

Editorial.

IMPRISONED INTELLECTS.

There are men of such low type, of such limited intelligence, and of such circumscribed aspirations, that they can easily move about in a very limited sphere. They realize no imprisonment, because they are very small men, and have no expansiveness in their nature. Time and sympathy seem wasted on these dwarf specimens of humanity. Yet, it may be well sometimes to knock on their iron bars, and try to arouse them from the degradation and disadvantages of their confinement. The oyster that is not disturbed by the recession and inflow of the tide does not grow; and though, at best, it reaches to a poor level of intelligence, it has about the capacity of some men.

Thank God, we have others who cannot be imprisoned. If they are at first circumscribed by poverty, ignorance and isolation, or by any hard fate, they soon break through their surroundings. Though they are at first as an unorganized jelly, their minute molecules soon gather into a nucleus, and present some definite form and activity. Then comes evidence of purpose and concentration of power; then of circulation of warm blood and of the formation of organic parts; and finally of noble life sent out for destiny and glory.

Ah, there is hope for the poorest intellect when there comes an exhibition of some fixt design expanding into growth, or even a mere restlessness in inactivity; for this will beget a struggle to become free from cramping environment, and a yearning for unfolding and growth and definite capacity for power and usefulness. The hard, dead, dry nut, as long as it is thrown hither and thither, and kicked about as of nothing worth, is surely of little worth; but force it into the warm, moist earth, where it was designed to be, and there are soon signs of internal force and life and power. There will be an expansion, an unfolding, a growth. The inspiration for activity and a better sphere rouses the latent energies, and forces it to swell and struggle and yearn for room and light and a distinct identity, till it bursts its shell, and comes up laughing into the sunshine.

Some men never come into their proper sphere, and never exhibit their real talents, because they are never stimulated by proper influences. The sluggish and limited air they breathe is enough for their diminutive lungs: a mere nutshell is sufficient for their minute circulation and life; and there is no necessity for providing for growth. But let them be waked up by some mighty force, especially if that force is from within, then the lungs grow big, the heart beats fast, the nerves become sensitive, the blood almost breaks its bounds, the intel-

lect seeks the glorious light, and the developed *man* steps forth into his own rich sphere God has designed for him. Body and soul are cramped and bound and weighted till they rise into the element for which they were made.

Also, let a man of broad intelligence and culture be imprisoned by any straitened circumstance, and he immediately feels the cords of his bondage; the atmosphere stifles him, and from the death-damp of his prison walls he cries, "More air! more light! more life! Give me liberty or give me death!"

So it is when a man of intelligence and grand thoughts shuts himself up to the exclusiveness of a single pursuit, as dentistry. Of course, he should make it his *main* business; but if he makes it his *only* business, he either dwarfs and cramps himself till he is a pigmy in anything else, or he breaks his bounds, and is soon heard of as a *man* as well as dentist.

Thus, imprisoned intellects either succumb to their surroundings, and diminish and die, or show their genius in finding some way out and asserting their right to "Life, liberty and the pursuit of happiness."

It is not the difficulties surrounding a boy or a girl, a man or a woman, that prevent growth, usefulness and celebrity. To an imprisoned intellect of any age or surrounding or condition, difficulties are the stimulus for success, to those who *will* rise. The very terms, pluck, striving, indomitable perseverance, imply difficulties—sometimes very great difficulties. But where there is great determination to overcome great difficulties, there will be great victory. The reason few children of rich and indulgent parents become a success is because their needs are supplied, and often their wants, too, without the disciplining struggle to obtain them. To give maturity and development of muscle, there must be the discipline of hard work and delicate skill; to give strength and capacity of brain, there must be the discipline of thought and plan; to give control of the passions, refinement of the feelings and breadth and direction to the purpose, there must be discipline of heart and spirit and will. But these soft-handed kid-gloved, dissipated, idle children of indulgent parents have only the perseverance of lawlessness, like the wild colt that breaks all bounds, but does no service.

There is hope for the youth who chafes under the conviction of ignoble ignorance and uselessness. In almost any age, and in almost any surrounding, intelligent and persevering struggle brings improvement, and sometimes wonderful improvement. None of us know of what we are made till we are tried in the crucible as gold is tried. Not much left of some of us; but what there is left is precious; and the more we have lost by refining, the more dross we discover we

had to hinder our shining. Of course, it burns up the whisky and the beer and the tobacco, and all other injurious and expensive and useless habits. And we shall find it is necessary, not only to have the gold in us refined, but we must get it ready for acceptable currency by much beating and annealing and rolling and cutting and polishing and beautifying, and final stamping to give it our individual value. Can we stand all this hammering?

For every man and woman, and every boy and girl, there is some way out of obscurity, poverty and uselessness, into honor and competency and usefulness. They may strike many a false cord, try many a wrong scheme, find themselves unadapted to what they would like to do; but perseverance will find them their place and that place will be their home. All fish live in the water; but each fish must swim to the water specially adapted to his nature before he is satisfied with his surroundings; then he develops and grows beautifully. Find your sphere and then determine to develop all its possibilities.

God has ordained that success means failure—not once, nor twice, but frequently and in every direction—failure after failure, discouragement after discouragement—push and struggle against many resisting forces—before we find ourselves out of our prison—all this to give us strength and growth, pluck and discernment, wisdom and skill. And even with all this we may discover we are not quite out of our prison. It is only a single ray of light peeking through our prison door to mock us, or rather to stimulate us to push the harder. But perseverance will finally force the door, and we shall come out into the light and life and liberty of growth and maturity and success.

THE USE OF VEXATIONS IN BUSINESS.

All circumstances of life have their lessons. Blest are those who can learn them. More blest are they who are willing to submit to severe discipline for valuable lessons; for here they find their richest experience. Yet, if most of us could have our own way, we would have nothing but ease, prosperity and enjoyment. We would avoid difficult work, troublesome patients, perplexing investigations, though it might deprive us of considerable discipline, knowledge and skill.

We were once much vexed with a nervous, precise, exacting old lady. It was difficult to do any thing that pleased her. Our first thought was to stand on our dignity and give her only the attention accorded to others; our second and better thought was forbearance. **My!** How we were tried. A hundred times we wished her a hundred miles away. But we have a thousand times since been thankful for the lesson taught us. She was certainly bad-tempered, fretful, over exacting, and unreasonable; but in the midst of all, we did our best.

Think you we were not the better in our workmanship and disposition for those two days' work, and for other patients of this class that we determined to make the most of?

Thus we all learn our best lessons of thoughtfulness, perseverance and discipline from disagreeable patients ; and our best lessons of precision, thoroughness and skill from difficult work. But to learn these essentials we must have,

1st. Much *patience*, a patience that shall not measure time or expense, or personal comfort ; a patience that shall be willing to plod laboriously, and try, and try, and try again, taking no account of failures, and in spite of every annoyance that is sure to come from the very one we are trying to please.

2d. And to this patience must be added *a well tempered temper*. Some are dextrous in holding in and disguising their wrath ; but, really, if you learn well your lesson, you will have no wrath to harbor. And this is the only way to do good work ; for while the temper is ruffled, the mind becomes confused, and we are nervous, unskilful and sure to be incomplete in our work. To have a steady hand, a clear head and an unwavering purpose, we must have an even temper ; not no temper ; let it be strong, if we are thoroughly its master, even in the midst of confusion and storm.

When, day after day, and week after week, we have only ordinary patients and work, and no lack of patronage and money, so that we have our own sweet will in every thing, we become careless, thoughtless and selfish ; if now unexpectedly a hypochondriac runs against us, or if even a patient who is hypersensitive in teeth or disposition, unreasonable, exacting, petulant and troublesome, as such patients are sure to be ; then it is we will show ourselves to be a fool or a wise man, by making the occasion one of disaster or of victory. If we can only command our temper and the situation, and meet the requirements with equanimity, intelligence and serenity, we show ourselves a greater general than one who takes a city ; and we shall come out stronger to go through similar ordeals.

3d. Also, if we are *teachable*, these difficult and vexatious cases will reveal to us many things we have not before learned. If we just sit down as a scholar on these unusual occasions, determined to learn something, we shall get up from the completed work wiser and more skilful dentists. We should even *invite* precise, inquisitive, exacting patients, whether they are intelligent or unintelligent, reasonable or unreasonable, patient or impatient, if only there is something in them to make us wiser or stronger. Let our patients then complain of the least blemish, the slightest carelessness, the most imaginary mishap. What of that if thereby we become better dentists ? Let us be willing,

to be put to our wit's end, to be confused, embarrassed and thwarted, and even to fail, and fail again and again, if in the end we succeed. We shall almost invariably find a lesson we could not have learned in any other way.

4. But midst all, and in spite of all, there must be *exactness*. However perplexing the case, however much time it takes, however much nerve power and material it consumes, and even however little pay we expect, every step must be taken with the greatest precision. Nothing is an excuse for bad work or bad temper, and nothing can take the place of exactness and equanimity. It is strange that these qualities are not attained in doing ordinary work, but they are not; it seems absolutely necessary to have difficult work and difficult patients to make us exact, skilful, successful workmen.

CURE FOR NERVOUS EXHAUSTION.

Sometime since, when we were scarcely able to walk two squares of Philadelphia without resting—and we had been in this condition for months—we visited the renowned Dr. Pepper for advice. “Ah,” said he, “if you will take my advice, and not my example, I can cure you. Be gone; see nothing of your business for three months; climb the hills, row the boat, take brisk walks, drink in the pure air, forget everything but pleasure and rest; be on your bed at least fifteen hours of every twenty-four. All this exercise, at first, with great moderation, of course; but every day let it be your business, till you can skip like a child, swim like a duck and run like a hart; or take medicine and die.”

But he could not himself take such advice—or thought he could not. He had no time; besides, it was so much easier to take medicine. Then, again, when we assured him the demands of our business was imperious, and we could not be spared from it—“Yes,” he said, “that is so with me; my city practice demands my presence. Yet, I am a fool for yielding to these demands, and you are a fool for following my example. I think sometimes, I will get along by doing less and resting more; but, as long as I am here, I am obliged to over do.”

I took his advice, in part, and found relief. Dr. Pepper stuck to his confining and over burdening practice till he was carried out of his beautiful house by four men on a stretcher. They thought him dead, he thought he was dying—all from nervous exhaustion.

We are too apt to take our recreation spasmodically—to neglect all till exhausted in the extreme—instead of taking it frequently and with regularity and pleasure. Let us be reasonable in our work and our habits, and we shall require less medicine and less journeyings to find health.

WHAT CONSTITUTES LIFE?

The inorganic has not life; it is governed only by the forces of attraction and repulsion. Particles have their affinities, and these produce their chemical selections, arrangements, accretions, and perfections, and are subject to those repulsions, disintegrations, and chemical changes which are continually dissolving old forms and producing new. This is sometimes called inorganic life. But essential to life are qualities these processes never exhibit.

Life is the distinctive principle separating the organic from the inorganic,—the distinction between the inert particles governed by electric and chemical repulsion and attraction only, and the embryo in which are added to these the two forces of assimilation and spontaneous action, with the peculiar property of growth produced by waste and reproduction.

The crystal—the perfection of inorganic substances—is produced by accretion of particles arranged by chemical affinity without waste or reproduction; the particles are selected, not assimilated, and once set in place are without spontaneous action. The very first arrangement is permanent; it is at once a perfect crystal; and once a crystal it is always a crystal, till by disintegration it ceases to be.

The embryo of living substance is a pabulum of undefinable, inseparable, and, so far as human estimate is concerned, of uncertain parts. That is, the embryonic beginning of the elephant and the oak are undistinguishable. It is only as the embryo develops by its own distinctive, inherent activities of life that its future nature and destiny are revealed. And this is not by accretion from without, as in inorganic substances, but by that wonderful multiplication of itself from within, called growth, which is a peculiarity of all living identities.

Therefore, in answer to the question, what constitutes life? we may answer: its essential constituents are Assimilation, Waste, Reproduction and Spontaneous Action. These are its ever present exhibits. If asked, what causes these phenomena? What is the force behind or within producing them? we could not answer, unless to say, it is that force of all forces, that life of all life—the supreme Intelligence of the universe.

There is another peculiarity of life which is a distinction between the organic and the inorganic; that is: It is not essential to have a crystal to produce a crystal. The material being present under proper conditions, the crystal forms. The sap of the maple boiled down to a proper consistency, and put into a vessel, separates into a syrup and crystals of sugar, not because this constitutes a process of life in the remotest degree; but because of the nature of this fluid, there need be

no crystals of sugar put in to produce crystals of sugar. But in the organic world there must be life to produce life. The proper substances may be present ; but if they are dead, they are dead forever. Life is a *reproducing* process, and its reproduction is only by the continued life of the embrion from the parent to the offspring, both in the vegetable and animal world.

Still another peculiarity—this of a negative nature : Dissolve the silica of the beautiful crystal so that it shall be only as the transparent water, yet give it an opportunity and it will reform and become the exact counterpart of its previous form ; but dissolve any living substance and it is dissolved forever.

SLEEPLESSNESS.

Sleeplessness is generally caused by nervous irritation, and yet it will not do to counteract this irritation with opiates for then the sedation will almost always be followed by a repetition of the trouble. The remedy must be that which will allay irritation. Perhaps there are few remedies better and more simple than hot compresses on the bowels, or a hot bath. Sometimes

THE HYDROPATHIC PACK acts like magic. Plenty of clothing is spread on the bed with a dry sheet uppermost. Another sheet is wrung out of hot water and spread on these, and the naked patient is immediately wrapt, first in this hot wet sheet, and then successively in each of the other coverings ; each being snugly tucked round him in every part, and snugly folded round the neck. He is now given a liberal draft of water. A glow of warmth and perspiration, and the soothing effect of a general poultice, soon puts him to sleep. He may remain in as long as this soothing effect continues ; when he is removed he is thoroughly washed, for it will be found that the skin is completely covered with a sticky, stinking exudation from the hitherto closed pores or the skin, which can now be removed by plenty of soap and hot water, with severe rubbing. A little ammonia in the water is an improvement. After this the patient sleeps soundly. Sometimes two or three of these packs once a week are advantageous.

IN FEVERS, rheumatisms, skin eruptions, and other diseases in which the skin is dry and torpid, or hot and irritated, this hydro-pathic pack is glorious. The main point is to see that the feet and the whole body becomes warm. Sometimes hot water must be placed at the feet and back, but generally, if the packing is well done, nature soon brings on the warmth.

Sometimes a good emetic is indicated in sleeplessness and in other cases of irritation and fever. How many times we may be our own best physician by using good common sense and a few simple means.

THE CLOSING OF THE YEAR.

Well, friends, here we come to the end of another year. Have we traveled together pleasantly and profitably? As editor, we have given you our best, both in what has been said by others and by ourself. Our aim has been to be practical, and therefore useful. Have we succeeded? If so, you will give us your hand for another year. We shall try to make it the best year of the series. We have aimed at this each year; and yet the result has been imperfect. There has not a number of the *ITEMS* gone to press that we have not done our best to make it the best; and yet, as it has come back to us, and we have set down to read it as a subscriber, we have not been satisfied, and have resolved to do better next time. We do try to improve. Our experience ought to give us increasing wisdom. We believe this will be seen in next year's series.

DENTAL LAWS.

We published, several months since, the list of States having dental laws. Inquiries come again for it. Below we give a list that we believe pretty accurate up to date.

Those requiring examination by only a State Board are: Alabama, Arkansas, California, Connecticut, Dakota, Delaware, Florida, Georgia, Illinois, Iowa, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, New Hampshire, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Vermont, West Virginia, Wisconsin.

Those requiring a diploma from a reputable college are: Kansas, Missouri, Nebraska and New Jersey.

It will be seen there are few States without a dental law, namely: Maine, Texas and Virginia. We may be mistaken in one of these.

Dr. W. H. Atkinson, of New York, has sustained a great loss in the death of his beloved wife. Those who have been familiar with Dr. Atkinson and his wife for the last fifteen years, and perhaps longer, know they have almost constantly kept "open house," and Mrs. Atkinson has done well her part—always affable, attentive and cordial. She was a noble woman, a motherly mother, and a lovable companion.

Make your office as much like a parlor as possible. Ventilate so frequently and cleanse so thoroughly that it shall have no "office scent;" have everything so attractive that it shall be a pleasure to enter it; prepare it in every respects for your best patients, not gaudily, but attractively, neatly and with substantial comfort.

Miscellaneous.

SLIPS OF THE TONGUE.

AMUSING AND EMBARRASSING BLUNDERS CAUSED BY ACCIDENT OR STUPIDITY.

"I never open my mouth but I put my foot in it," was the curious complaint of some unlucky wight, who might have received consolation had he reflected on the number of offenders that daily keep him company. A writer in *Chambers' Journal* tells of a number of bulls as much amusing. The guardsman's remark to the English nobleman who was in the habit of affably conversing with soldiers, "I like you, my lord; there is nothing of a gentleman about you," offers an example of the kind. "How many deaths?" asked a hospital physician. "Nine." "Why, I ordered medicine for ten." "Yes; but one would not take it," was the startling reply. "Hillo! where are you going at this time of night?" said a gentleman to his servant. "You are after no good, I'll warrant." "Please, sir, mistress sent me for you, sir," was the response. A gentleman said to the waiter of his club: "Michael, if I should die, would you attend my funeral?" "Willingly, sir," was the hasty answer. "Well, Michael, that isn't very complimentary." "No, sir, I didn't mane that, sir; I wouldn't be seen there, sir," was the waiter's consolatory reply.

A child may often be expected to put his or her heedless little foot in it, as the phrase goes. For instance, a youngster one day begged an invitation to dinner at the house of a friend with whom he had been playing. At the table his hostess anxiously inquired: "Charlie, can you cut your own meat?" "Humph!" said the youngster, who was sawing away, "can't I? I've cut up quite as tough meat as this at home!" People who are destitute of tact might take warning from such juvenile malaprops, but such does not often appear to be the case, judging by the numerous examples to the contrary.

A millionaire railway king has a brother who is hard of hearing, while he himself is remarkable as having a very prominent nose. Once the railway king dined at a friend's house when he sat between two ladies, who talked to him very loudly, rather to his annoyance, but he said nothing. Finally one of them shouted a commonplace remark, and then said in an ordinary tone to the other: "Did you ever see such a nose in all your life?" "Pardon me, ladies," said the millionaire, "it's my brother who is deaf." You can imagine the horror of the lady who indulged in such personal remarks, yet she was no more awkwardly placed than the hero of the following: When dining at a certain castle a Mr. T——, after the ladies retired, remarked to a gentleman present that the lady who sat on his right was the ugliest woman he had ever seen. "I am sorry to hear," said the gentleman, "that you think that my wife is so ill looking." "Oh, no, sir; I meant the lady who sat on my left; I made a mistake." "Well, sir, she is my sister."

Alluding to newspapers, it may be remarked that advertisers and unpractised writers therein through ambiguity of words and phrases often commit absurdities that may be touched on as further illustrating our subject. A country paper once related how, "during the celebration, a child was run over wearing a short dress, which never spoke afterward." In the description of the doings of a mad dog it is said that "he bit a horse on the leg, which has since died." An account of a funeral says: "The remains were committed to that bourne from which no traveler returns attended by his friends."

It is not surprising that foreigners sometimes fail to catch all the shades of meaning to our words. A Frenchman translated Shakespeare's line, "Out, brief candle," by: "Get out, you short candle." And the expression, "With my sword I will carve my way to fortune," was rendered: "With my sword I will make my fortune cutting meat."

Advertisers often give us amusing specimens of composition, of which this is an example: "Lost by a poor lad tied up in a brown paper with a white string a German flute with an overcoat on and several other articles of wearing apparel." A miller attempted to testify to the merits of a powder for destroying vermin by saying: "A fortnight ago I was full of rats, and now I don't think I have one."

Examples more of the "bull" genus also come under the title of this paper as cases in point. For instance, a newspaper was running a serial story called "The Truth." One week, so much space being devoted to other matters, the editor was unable to continue the story, so made the following announcement, containing perhaps more truth than any other item in the paper: "'The Truth' was crowded out of this issue on account of the press of more important matter."

A bashful gentlemen who visited a school kept by a young lady was asked by the teacher to say a few words to the pupils. This was his speech: "Scholars, I hope you will always love your school and teacher as much as I do." A tableau of giggling pupils and a blushing teacher attested the effectiveness of his words.

The lecturer put his foot in it as thoroughly when he prefaced his discourse upon the rhinoceros with: "I must beg you to give me your undivided attention; indeed, it is absolutely impossible that you could form a true idea of the hideous animal of which we are about to speak, unless you keep your eyes fixed on me." A certain preacher, discoursing upon Bunyan and his works, caused a titter among his hearers by exclaiming: "In these days, my brethren, we want more Bunyans." Another clergyman, pleading earnestly with his parishioners for the construction of a cemetery for their parish, asked them to consider the "deplorable condition of thirty thousand Christian Englishman living without Christian burial." Still more curious was the clerical slip with which we conclude. A gentleman said to the minister: When do you expect to see Deacon S—— again?" "Never," said the reverend gentleman, solemnly; "the deacon is in Heaven."

Quillaya Bark in Catarrh.—Dr. Trechinski writes in the *Ejenedelnaya Klinicheskaya Gazeta* that he finds powdered quillaya bark of great service in both acute and chronic catarrhal rhinitis. It

is put in a paper bag and the patient directed to shake it up and snuff up the dust from it every few minutes. At first the secretion is increased, and is of a brownish or yellowish color from the admixture of pus cells. After a very short time, however, it diminishes in quantity, and becomes quite colorless. The nose then becomes dry, and the passage through it clear. If the use of the quillaya is prolonged, the secretion is continued, but is quite colorless. The powder, when introduced into the nares and pharynx, appears to increase the secretion from the mucous membrane, but at the same time to remove all the pathogenic matter existing there.

Adhesive Qualities of Onions.—Paper pasted, gummed, or glued, on to metal, especially if it has a bright surface, usually comes off on the slightest provocation, leaving the adhesive material on the back of the paper, with a surface bright and slippery as ice. The cheaper description of clock dials are printed on paper and then stuck on zinc; but for years the difficulty was to get the paper and metal to adhere. It is, however, said to be now overcome by dipping the metal into a strong and hot solution of washing soda, afterward scrubbing perfectly dry with a clean rag. Onion juice is then applied to the surface of the metal, and the label pasted and fixed in the ordinary way. It is said to be almost impossible to separate paper and metal thus joined. Probably metal shows tablets might be successfully treated in the same manner.

To Preserve Eggs.—Take a teacupful of salt, and lime to the size of an egg, and pour boiling water on them. When cold, drain off the liquor and put it on the eggs. If too strong, there will be a crust on top; if so, add more water. This is for two gallons of liquor. There is no receipt that beats this, and it can be relied upon. Eggs put down in August and used in April are just as fresh and make just as nice frostings as newly laid ones.

A Non-Poisonous Rat and Mouse Destroyer is given in *Rundschau (Prag)*. A strong (one to 5) tincture of squill is first prepared, then small, flat cakes are baked, made of flour, bacon and milk. These cakes are dipped into the tincture until thoroughly saccharated, and dried at a warm (not hot) temperature. Placed where the rodents can get at the morsel, they will devour it with avidity.

The "Cigarette Eye."—A New York oculist says that the greatest enemy to the eyes of young men is the cigarette. Recently a disease has appeared among smokers which is dangerous, and, after careful investigation, the best authorities, who for a long time were at loss to understand the peculiar malady, have traced it to the small, paper-covered tobacco sticks. It is now known as the "cigarette eye," and can be cured only by long treatment. Its symptoms are dimness and film-like gathering over the eye, which appears and disappears at intervals.—*Chicago News*

We have known even dentists to smoke the abominable stuff.—Ed. *Ohio Journal*.

ITEMS — OF — INTEREST.

The Dental Independent.

T. B. WELCH, M. D., EDITOR, VINELAND, N. J.

Contents.

THOTS FROM THE PROFESSION.

American and Southern Dental Associations.....	529
—Odontoblasts in relation to Developing Dentine.....	529
—Hypodermic Injection of Cocaine.....	529
—Lead as a Root-filling.....	530
—Three Therapeutic Agents as Essentials.....	530
—Catarrhal Nature of Rigg's Disease.....	531
—Incipient Dental Caries.....	531
—Replantation.....	532
—Prosthetic Dentistry.....	534
—Dental College Education.....	534
—Hygiene.....	535
Legal Status of Dentists.—Daniel Mason.....	536
Pulpless Teeth.—Wm. H. Atkinson.....	542
Rubber, & How to Use it.—D. Genese.....	544
Dental use of Arsenic.—G. A. Mills.....	546
Furnaces.—L. P. Haskell.....	549
Conducting Dental Societies.....	550
Disappearing of Old Fashioned Diseases.....	551
Devitalized Teeth.—H. H. Johnson.....	553
History Repeating Itself.—Trades Union.....	554
How Microbes Decay Teeth.—C. N. Johnson.....	555
Copper in Amalgam.....	556, 560
Advertising by Dental Colleges.....	556

National Association of Dental Colleges.....	557
Filling Dead Teeth.—C. T. Stockwell.....	558
A Dry Mouth.....	560
Prominent Cuspids.....	560
The Pulp of a Tooth.....	561
Reform in Our Spelling.....	561
Thinking and Working.....	561
College Education.....	561

FOR OUR PATIENTS.

That Old Man Called a Dentist.—A Poem.....	562
Extracting "Without Pain" a burlesque.....	563
Advice to My Patient.—J. W. Cowles.....	564
The Dentist Caught.....	565

EDITORIAL.

Imprisoned Intellectuals.....	566
The Use of Vexations in Business.....	568
Cure for Nervous Exhaustion.....	570
What Constitutes Life?.....	571
Sleeplessness.....	572
The Closing of the Year.....	573
Dental Laws.....	573

MISCELLANEOUS.

Slips of the Tongue.....	574
Quillaya Bark in Catarrh.....	576
Adhesive Qualities of Onions.....	576
To Preserve Eggs.....	576
A Non-poisonous Rat Destroyer.....	576
The "Cigarette" Eye.....	576

PUBLISHED MONTHLY BY

WELCH DENTAL COMPANY,

1413 Filbert Street, Philadelphia.

Entered at the Post Office, at Philadelphia, Pa., as Second-Class Mail Matter.

\$1.00 per year, in Advance.

Single Copy, 15 Cents.

BARGAINS!!

No. 1.	Bonwill Engine, with Bonwill Hand Piece. Used only a short time. Equal to a new engine. Price*.....	\$38 00
No. 2.	New Mode Heater, complete for gas. In first-class order. A bargain. Price.....	20 00
No. 3.	Electrical Dental Engine. Hodge Hand Piece, complete with Nickel-Plated Motor, Crane, Spring Balance, 9 ft. Silk Double Cord, two 15 ft. length Cotton Covered Copper Conducting Wires and Automatic Battery, No. 3 (6 cells), complete with lead pan. Everything new and a decided bargain. Price*.....	45 00
No. 4.	Outside Show Case for Dental Display, 3 ft. 3 in. high, 15 in. wide, 10 in. deep, three shelves, good glass front and mirrored back. Made to fit on three sides of awning post, 7 in. across, 6 in. deep. Neatly painted in black, and striped. Price.....	10 00
No. 5.	Electric Mouth Lamp and Laryngoscope, with Cord, in Morocco Case. Very little used. In first-class order. Price..	10 00
No. 6.	S. S. White Dental Engine, old style. Hodge Hand Piece. In good working order. Price*.....	25 00
No. 7.	S. S. White Dental Engine, old style. Hodge Hand Piece. In good working order. Price*.....	25 00
No. 8.	Wilcox Dental Engine, Wilcox Hand Piece. New. Price*..	20 00
No. 9.	No. 3, Archer Chair with Footstool, Green Plush, worn some. Otherwise Chair good as new. Cost new, \$99.00. Price....	40 00
No. 10.	Seabury Vulcanizer for gas. In good order. Price.....	15 00
No. 11.	Welch No. 8 Lathe, complete, and in first-class order. Price..	13 00
No. 12.	No. 6, Gas Outfit consisting of 100 gal. Gas, Cylinder and Tripod. N. P. Inhaler, with Hood, 7 gal Gas Bag, &c. Equal to new. Price.....	22 00
No. 13.	50 Pairs N. P. Forceps, nicely finished and made of first-class material. Order from our Forcep list. Some few patterns we are now out of, and it would be well to place your orders early. We cannot furnish Nos. 100 R & L. Price, per pair..	1 50
No. 14.	Excavator Points for Cone Socket Handles. A good assortment, but not our regular stock. Price, per doz.....	75
No. 15.	50 boxes Tin Foil, thickness No. 4. Put up in neat box on roller. Foil in one piece, 5 yds long and 6 inches wide. Price, per box.....	20

* Boxing 75 cents extra.

IS IT A SECRET PREPARATION?

How can the objection hold good against our Gold and Platina Alloy, that it is a secret preparation? From the first, we have published that it is composed of Gold, Platina, Silver and Tin. The proportion of each is such as to give the best results. We admit, as it has been often charged, that an amalgam of gold alone does not give a desirable alloy; that one of platina alone sets too quickly, and is otherwise undesirable; that an amalgam of only silver is too dry and crumbly; and that one with too great a proportion of tin makes an amalgam too soft and short lived. But the experience of those who have used our Gold and Platina Alloy shows that when all these are in proper proportion, and combined by a proper process, the result is an Alloy of wonderful tenacity, endurance and general desirable qualities.

Our unreasonable critics would have us give the exact proportion of each metal. This is asking too much; for to obtain what should be these exact proportions has cost us much time, labor and experimenting, with long, close observations and trials. But even if we imparted to them this information, they would produce by the formula an unsatisfactory alloy, and then be sure to charge that we had deceived them. For instance, in the early days of its manufacture, we did tell a noted Professor of one of our Dental Colleges, who was then himself a manufacturer of amalgams. When we next met, he said: "Dr. Welch, I will not say you lied when you told me the proportion of platina you profess there is in your Alloy, but I must frankly tell you there is none there. I believe, if there is any man living who can alloy platina with gold, silver and tin, I can; and I have gone through the most exhaustive experimentations without being able to make any proper homogeneous mass. The fact is, if you do put in any platina, it either remains with the refuse and is thrown away, or it sinks to the bottom of your crucible and penetrates it, and is thus lost." "Well," I replied, "I was a fool for telling you anything about it; for I may have known you would make a mess of it, and then charge me with falsehood. As long as I failed to produce the results I now do, I would have doubted its possibility by any one else; and I would now rather for you to believe I lied to you, than to give you any further information."

About a year after this conversation, he met me again, when he exultingly said: "Ah, Doctor, I have the secret now; you add the platina to your alloy after it is made and cut, in the form of sponge platina; you do not attempt to melt it; I can do that myself." "Well," we replied, "abundant success to you," and passed on. It would have done no good for us to have denied it, though it was such an absurdity; and we preferred his putting on the market "A New Platina Alloy," that he might verify his great discovery.

We refer to this circumstance merely to show that to please some of our sensitive critics, we should have to tell not only the exact proportions of our Alloy, but the exact process of combining its metals. And then they would not succeed without much experience.

Why is it not sufficient to know the metals of which this Gold and Platina Alloy is made; and especially to know that its use in the hands of more than four thousand dentists during the last ten years is highly satisfactory, while its price is as low as its gold, platina and silver will possibly allow it to be sold?

THE DIAGRAM Appointment Book

The "Diagram" Appointment Book and Pocket Diary is a new book suggested by practical dentists, and meets the wants of the profession. The "Diagram" Appointment Book is $6\frac{3}{4} \times 4\frac{1}{4}$ inches. In the front it has calendars for 1886, 1887, 1888 and 1889, and a table to show the number of days from any day in one month to the same day in any other month. The new feature of the book combines with an appointment book a DIAGRAM for registering the work to be done, or to make memorandum of the work when finished, by having a diagram for each day, and the diagram in such shape as to be efficient and yet not make the book bulky and unhandy. There are one week's appointments on two opposite pages, and, therefore, 6 diagrams on same space. In the back of the book are pages for memoranda.

The book may be used without the diagrams and then is very similar to other appointment books. There can be no disappointment in the paper, ruling, printing or binding, as they are all first-class in every particular.

TUESDAY.

2. Mo. 1.0

8	Miss Frailey	1	P. W. Peck
9		2	Edgar Thomas
10	Bertie Cook	3	
11	Mrs. Harmon	4	Paul Rose
12		5	

The above is a facsimile of one day's work in the "Diagram Appointment Book;" the appointments are made as usual, and the fillings are accurately noted on the diagram. No ledger or other memorandum is necessary for immediate use; at leisure the work may be copied into the large ledger, if desired. After each person's name a note may be made of the amount charged or paid. It will be seen that it is easy to keep a record on this diagram of the work of this day, or of any day, by letting the hour of appointment stand for that person in the diagram; thus the figures 8 in the diagram stand for, Miss Frailey, the 8 o'clock appointment.

Price in Cloth, 50 Cents. Leather, 75 Cents.

WELCH DENTAL CO., PUBLISHERS.

DENTAL LEDGER, ALLPORT CHART.

In these books we have used the well-known Allport Chart, the best paper, nicely ruled. Our No. 4 Bill Head should be used in connection with this ledger.

Two charts to page,	172 pages,	Half Roan.....	postpaid,	\$2 00
"	"	340 "	"	3 00
"	"	340 "	Half Turkey	3 50

No. 1 APPOINTMENT BOOK.

TRADE SUPPLIED BY WELCH DENTAL CO.

MONDAY.

8		1	
9		2	
10		3	
11		4	
12		5	

TUESDAY.

8		1	
9		2	
10		3	
11		4	
12		5	

WEDNESDAY.

8		1	
9		2	
10		3	
11		4	
12		5	

Can be used for any Year and commencing at any time.

Fine Leather Cover, Good Paper, Memorandum and Cash Account.
Calendar for Five Years.

Price, - - - 50 Cents.

Price, with tucks, - - - 75 Cents.

...

Amt.

No.

Date.

[illegible]

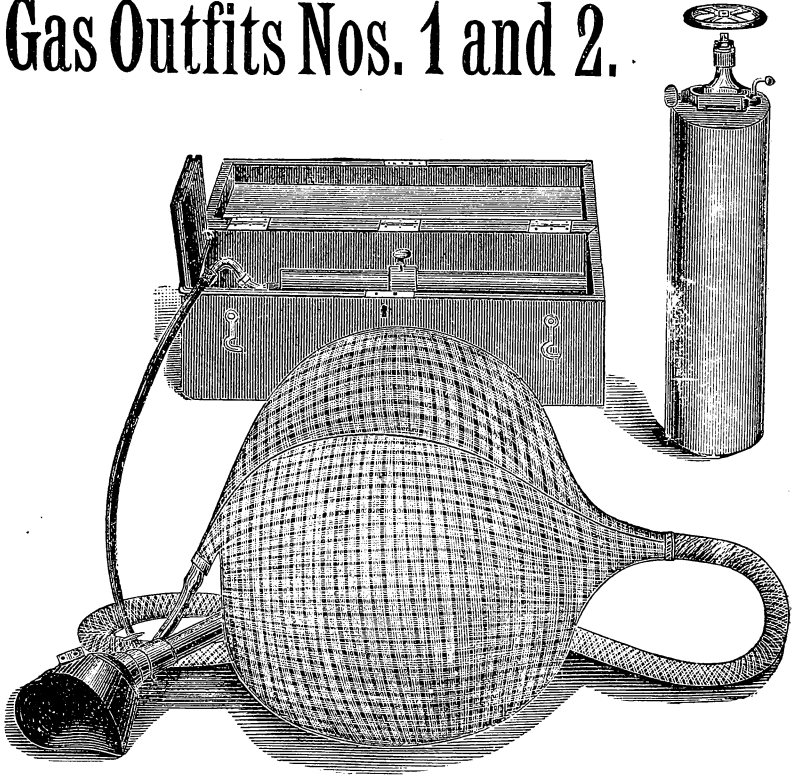
A diagram showing a circular arrangement of cells. The cells are arranged in a ring, with a central space. The cells are represented by circles containing various patterns of dots and lines. Two vertical double-headed arrows are positioned at the top and bottom of the central space, indicating a vertical dimension or distance.

Bill Head No. 4, is just like No. 3, except the lines are ruled in red and blue, like Allport's Ledger. Price with name and address, \$1.15 for 100, \$3.75 for 500. Without name and address, 75 Cents for 100.

Price per Hundred, 30 Cents.

REDUCTION IN PRICES.

Gas Outfits Nos. 1 and 2.



The complete outfit is shown in the above cut, and consists of a strong, well-made case, covered with leather and lined with velvet, finished with nickel plated trimmings. An iron cylinder containing 100 gals. liquified Nitrous Oxide; the cylinder is clamped in a strong ring and held securely in place. Connection between cylinder and bag is made through an adjustable clamp on cylinder and heavy rubber tubing; inserted in tubing is a small stop-cock. By filling bag and turning off the stop-cock the rubber may be detached from cylinder and bag used where it is not convenient to carry cylinder.

The bag is made of rubber cloth and connected to inhaler by four feet of covered tubing. We furnish any one of our inhalers with outfits. No. 1 outfit has a $4\frac{1}{2}$ gallon bag; the No. 2 a 7 gallon bag.

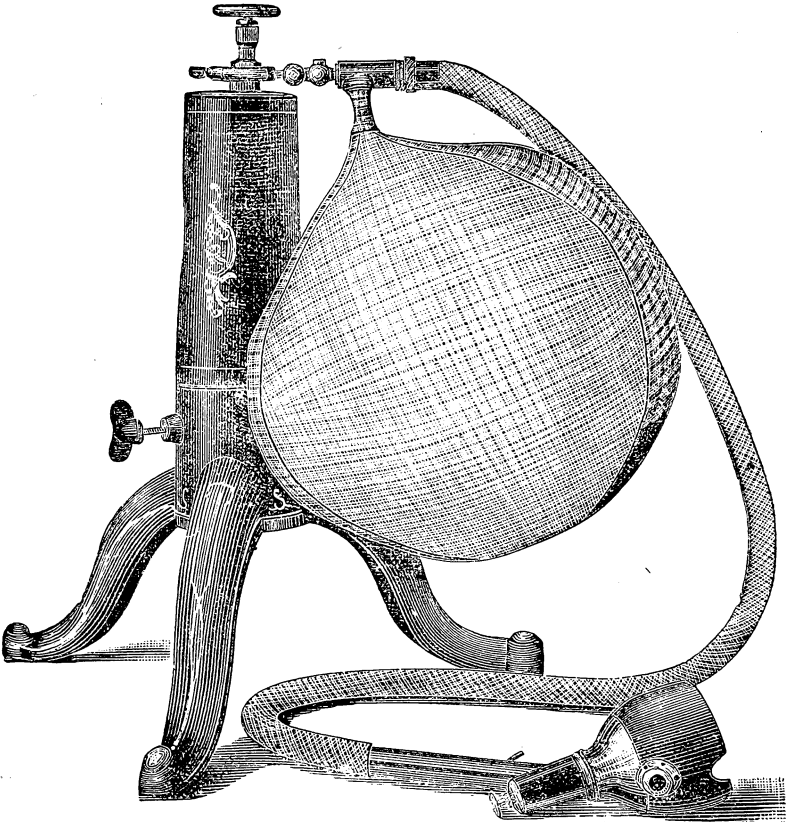
PRICE:

No. 1 Outfit, complete.....\$31.00.

No. 2 Outfit, complete..... 33.00.

REDUCTION IN PRICES.

Gas Outfits Nos. 6 and 7.



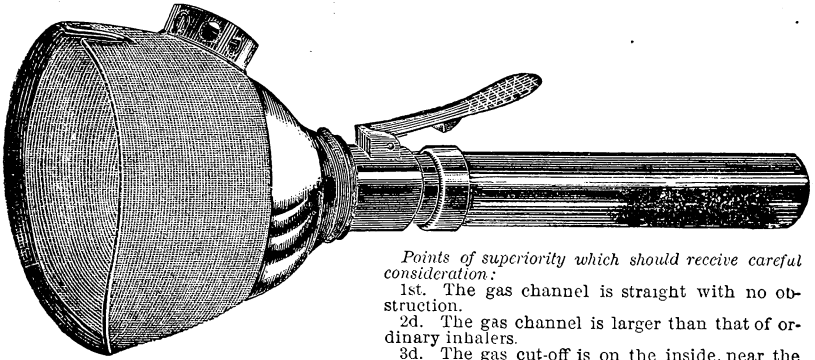
We show these outfits complete in cut. They consist of Iron Gas Cylinder and Gas Tripod for holding same, the latter neatly japanned and decorated, New Yoke Attachment, 7 gal. Gas Bag, 4 feet Covered Tubing, and any one of our inhalers. Connection is made between cylinder and gas bag by our New Yoke Attachment, described on another page, if desired our Vitalized Air-Cup can be fitted to attachment and chloroform or ether mixed with the gas. Bag and attachment can be disconnected from cylinder and used out of the office.

No. 6 Outfit has a 100-gallon cylinder and tripod. No. 7 Outfit, a 500-gallon cylinder and tripod, otherwise the outfits are identical.

PRICES :

No. 6 Outfit complete with 100 gallons gas,	-	\$29 00
No. 7 " " " about 500 gallons gas,	-	46 50
Vitalized-Air Cup, extra,	-	4 00

IMPROVED AUTOMATIC INHALERS.



Points of superiority which should receive careful consideration:

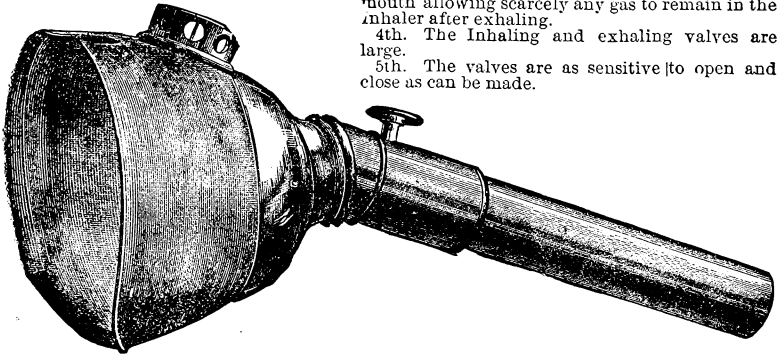
1st. The gas channel is straight with no obstruction.

2d. The gas channel is larger than that of ordinary inhalers.

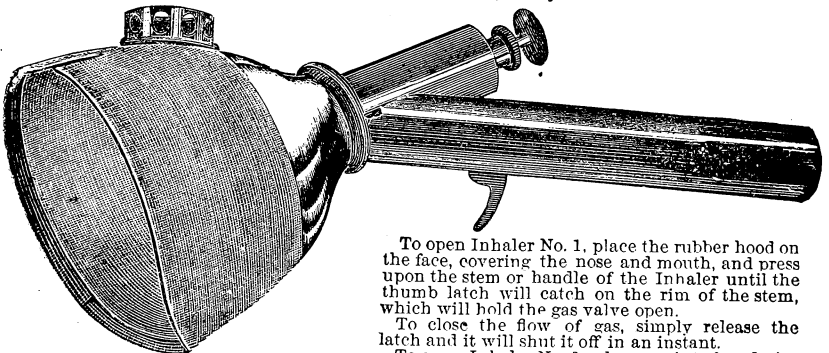
3d. The gas cut-off is on the inside, near the mouth allowing scarcely any gas to remain in the inhaler after exhaling.

4th. The Inhaling and exhaling valves are large.

5th. The valves are as sensitive to open and close as can be made.



[PATENTED JULY 7, 1885]



To open Inhaler No. 1, place the rubber hood on the face, covering the nose and mouth, and press upon the stem or handle of the Inhaler until the thumb latch will catch on the rim of the stem, which will hold the gas valve open.

To close the flow of gas, simply release the latch and it will shut it off in an instant.

To open Inhaler No. 2, when gas is to be administered, press on the thumb button this releases the valve and a free flow of gas is permitted through the tube.

By removing the thumb the pressure is released and the spring draws the valve against its seat, and the gas is instantly shut off.

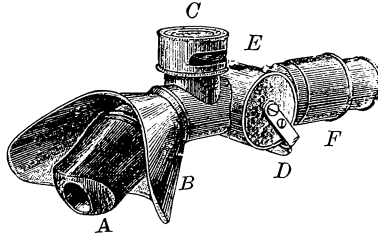
No. 3 opens and closes the same as No. 2.

Inhalers Nos. 1, 2 and 3,

\$8.00.

AUTOMATIC GAS INHALER.

Nickel Plated.



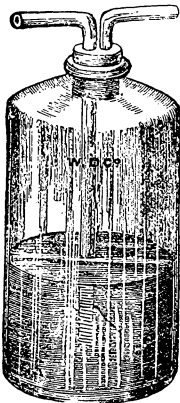
The cut shows this Automatic Inhaler complete for use with ordinary gas tubing, but we furnish it also at same price for covered inhaler tubing.

A, is a Hard Rubber Mouth-piece; B, Metal Mouth Hood; C, Exhaling Valve; F, Inhaling Valve; D, is a two-way ground Stop-Cock. When giving the gas the Stop Cock D, is turned as illustrated, thus closing the hole E, the exhalations escaping at C.

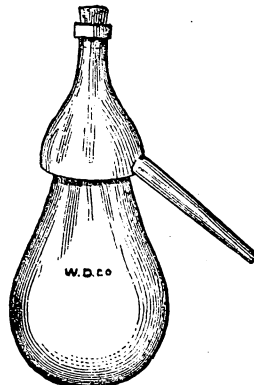
PRICES.

Inhaler with Metallic Mouth-Hood,	.	.	.	\$8 00
“ without “ “	.	.	.	6 50
“ with Flexible Rubber Hood,	.	.	.	8 50

WASH BOTTLES AND RETORTS.



No. 1.

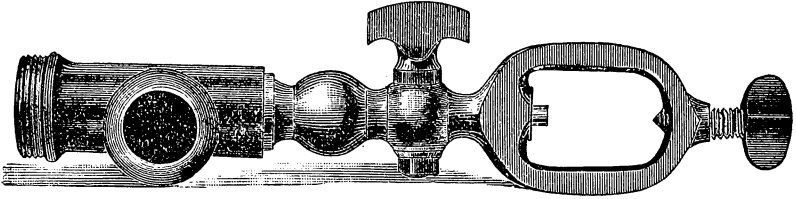


No. 2.

PRICES.

No. 1. Wash Bottle, complete.....	\$1.75	No. 3. Long Neck Retort, 1 quart.....	1.00
No. 2. Bohemian Retort, “	1.25	No. 4. “ “ “ 2 “	1.40

NEW YOKE ATTACHMENT.



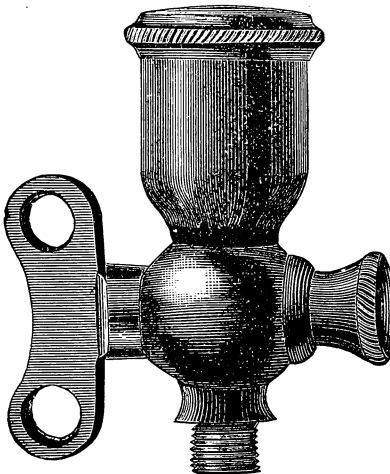
The cut shows the attachment about half size. It is used as illustrated in outfits Nos. 6 and 7, and will fit any valve, excepting old style S. S. W. Its great advantage consists in so holding the bag as to insure a free flow of gas, until the bag is empty, as well as preserving bag in best shape and without danger of damaging it. On the top of the attachment is a place for attaching the vitalized air cup. The stop-cock is intended for use when it is necessary to remove bag from cylinder.

The attachment is of brass, heavily nickeled.

PRICES.

Attachment, as shown in cut.....	\$4 00
“ with Vitalized Air Cup.....	7 00

VITALIZED AIR CUP.



(Full Size.)

between the gas cylinder and the bag or gasometer—turn a second half and the pocket or cup is again filled ready for use. Keep the pocket always up. Open the valve of cylinder and allow the gas to pass slowly. The five drops will evaporate with the first 2 or 3 gallons of gas. If needed for strong and stubborn cases or for prolonged operations, more fluid may be turned down to each 5 or 7 gallons.

We recommend for ordinary use 1 drop of fluid to a gallon of gas.

Give the vitalized air, or Combination, the same as simple gas. It is considered one-third less gas may be used with this Combination, and the effect is more satisfactory, and lasts a trifle longer.

This cup is to be used in connection with our “New Yoke Attachment.” It is made of brass heavily nickel plated.

Vitalized air is a definite and accurate amount of ether or chloroform added to liquid gas, while on its way from the cylinder to the bag or gasometer, and thoroughly mixed therein.

“In this combination there is that that will produce thorough anesthesia without the exalted effect of the gas, or the depressing influence of chloroform or ether, and of longer duration than gas. The poisonous elements of the chloroform and ether on the nerves are supposed to be neutralized by the antidotal properties of the nitrous-oxide.”

DIRECTIONS.—Put within the cup sufficient ether or chloroform, as future use may require. Keep cover well screwed down.

Turn the faucet plug half way and 5 drops are deposited in the passageway between the gas cylinder and the bag or gasometer—turn a second half and the pocket or cup is again filled ready for use. Keep the pocket always up. Open the valve of cylinder and allow the gas to pass slowly. The five drops will evaporate with the first 2 or 3 gallons of gas. If needed for strong and stubborn cases or for prolonged operations, more fluid may be turned down to each 5 or 7 gallons.

We recommend for ordinary use 1 drop of fluid to a gallon of gas.

Give the vitalized air, or Combination, the same as simple gas. It is considered one-third less gas may be used with this Combination, and the effect is more satisfactory, and lasts a trifle longer.

PRICES.

Vitalized Air Cup, as shown in cut.....	\$4 00
“ “ with New Yoke Attachment.....	7 00

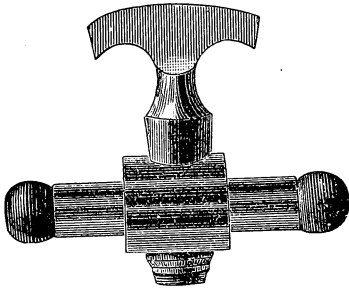
Reduction in NITROUS OXIDE GAS.

Until further notice we will sell our gas at

2 CENTS PER GALLON.

We do not pay express charges, either way, and must request you to prepay charges when you send us your cylinder. Place your name upon cylinder or box and advise us by mail of its shipment. In many cases the express companies will forward empty cylinders to us free of charge. See your express agent.

STOP COCK.

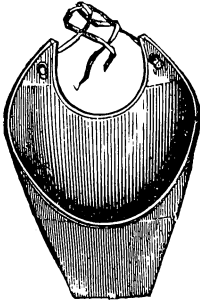


(Full Size)

This stop-cock is used with our gas outfits Nos. 1 and 2; but is adapted for other uses in laboratory or office. It is neatly made of brass, heavily nickel plated.

Price, \$1.00

HORTON DENTAL BIB.



Made on an iron frame. It is held in position better if the tape is tied on top of the head.

PRICES.

White Rubber Cloth (postage free), \$1.00

Black Rubber, much preferred, 1 25

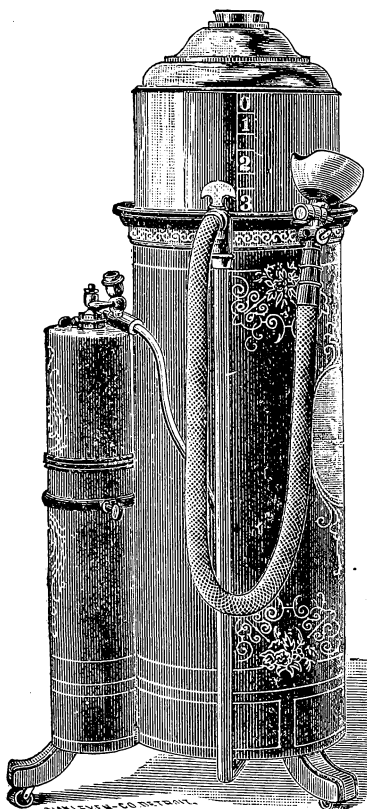
Pat. April 20, 1875.

PRICE FOR PARTS FOR GAS OUTFITS

Connections for gas bags, nickeled,	Rubber hood for inhaler.....	\$1 00
per coupling.....	Stop-cock, nickel plated.....	1 00
Gas bag, 4½ gallons capacity....	Surgeon's cases, leather covered,	
" 7 " " ".....	velvet lined, nickel plated trim-	
Gas cylinder, 100 gallons.....	mings.....	10 00
" 500 " " ".....	Thimble to secure yoke and tubing	10
Gas stand for 100 gal. cylinder..	Vitalized air cup.....	4 00
" 500 " " ".....	Wheel key.....	25
Inhaler, No. 1, 2, or 3, nickel	Yoke attachment, nickel plated..	1 50
plated.....	New yoke attachment, nickel	
Inhaler tubing, worsted, per foot.	plated.....	4 00

LONG'S Improved Apparatus, FOR PRODUCING ANESTHESIA.

Patented March 4, 1884.



This apparatus has many auxiliaries that are sought after and not found in any other apparatus.

It has a Wet Cistern and a Dry Gas Chamber, thus preventing the gas from being absorbed by the water. The gas chamber is hermetically sealed with metal top, bottom and sides, and will keep gas in the receiver as perfectly as in the gas cylinder.

It has a chemical attachment, and the operator can use pure gas or the combination.

At its base is fastened a holder that will receive any sized gas cylinder.

The receiver holds about ten gallons, and registers the amount inhaled.

The metal tube and attachments are all nickel plated, and the apparatus is highly ornamented, making an elegant object in the office. It can be used with water or oil.

More advancement has been made by Dr. Long with his apparatus in the manner of holding the gas and giving it and the effect produced, than all other improvements combined for gas in the last ten years. With his apparatus gas can be kept any length of time without loss or deterioration of quality, as it does not come in contact with the water, and the patient can inhale it as easily as the natural air. All dentists have realized the inconvenience and loss of drawing gas from the cylinder into a rubber bag, and by the arrangements of all other gasometers except this, the loss of gas, both in quantity and quality, in standing over water has been a great objection. Dr. Long's apparatus entirely overcomes these objections, as the gas does not come in contact with the water, but is retained in a dry chamber, and is kept perfectly pure any length of time.

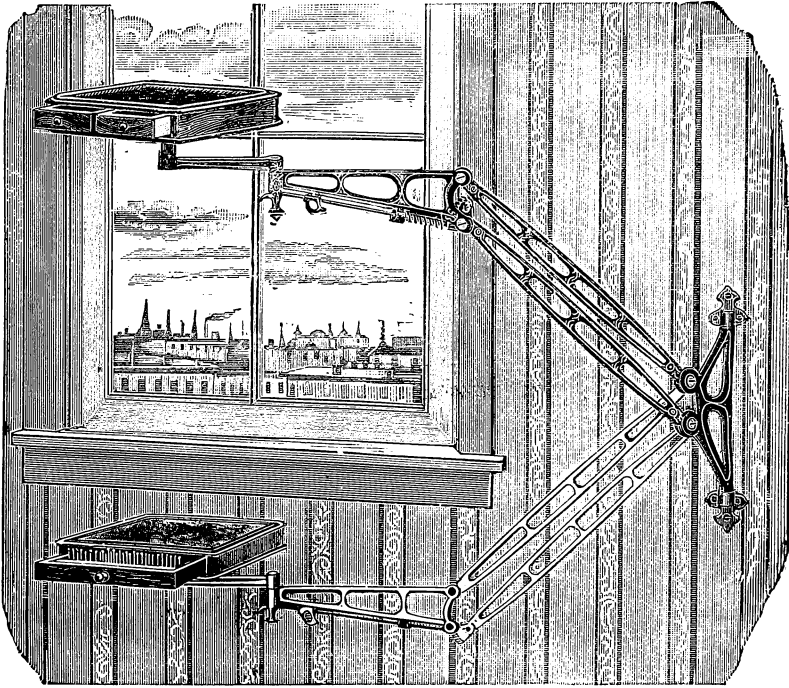
Instructions will be given with each apparatus.

Long's Inhaler has larger valves and is capable of greater volume than the ordinary inhaler. It has hood mouth piece, and a spring valve which will close itself at the end of the operation.

PRICES:

Gasometer, Complete with Chloroform Attachment, Inhaler, Tubing,	
100-gal. Cylinder and Gas	\$66 00
Gasometer, with Chloroform Attachment and Tubing	50 00

Dental Bracket, No. 4.



The Bracket extends out from wall four feet and has a range from lowest to highest point of 30 inches. The table is finely finished, and can be furnished of walnut or cherry. The top of table is covered with finest silk plush, and trimmed with silk cord.

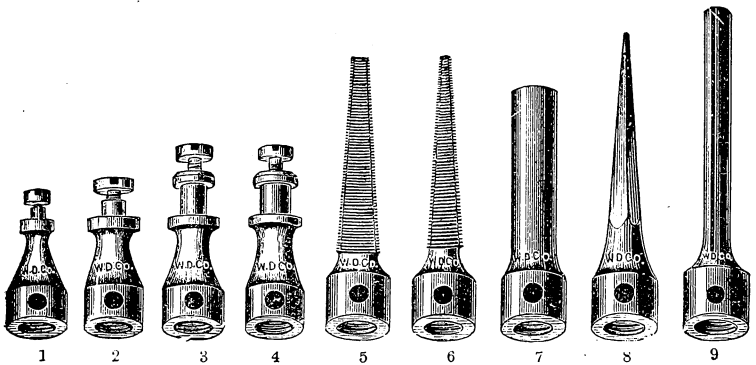
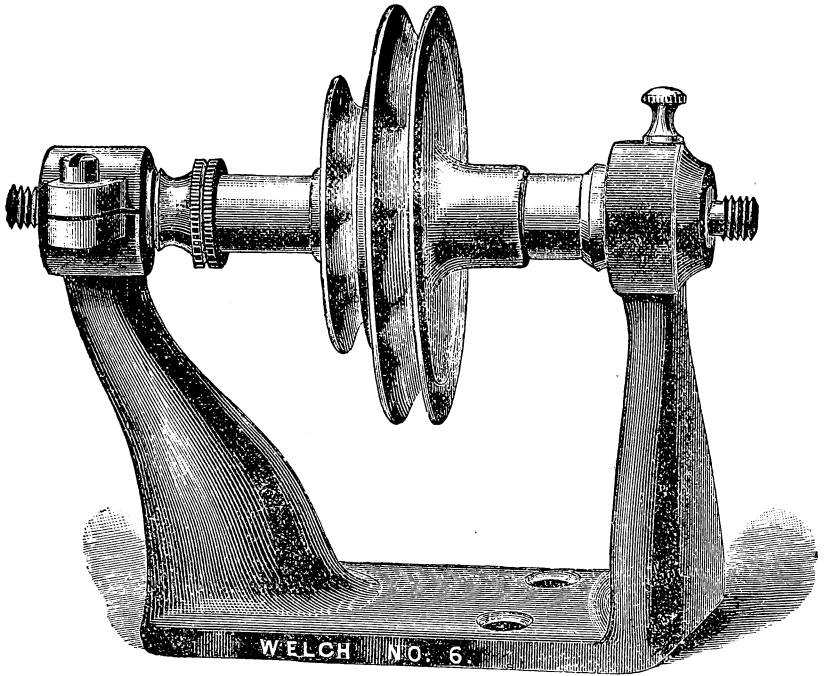
The drawers are nicely lined with velvet. In large drawer is a substantial Engine Point Rack.

Price, \$14 00

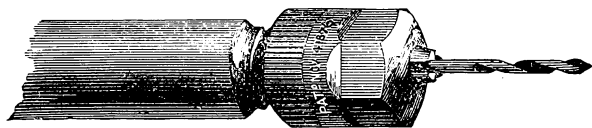
Price, with Plain Top Table, Drawers not Lined,
and without Engine Point Rack, . . . \$12.00

(590)

WELCH LATHE HEAD, No. 6.
CONE JOURNAL BEARINGS.



Cuts of Mandrels are Just One-Fourth Size.

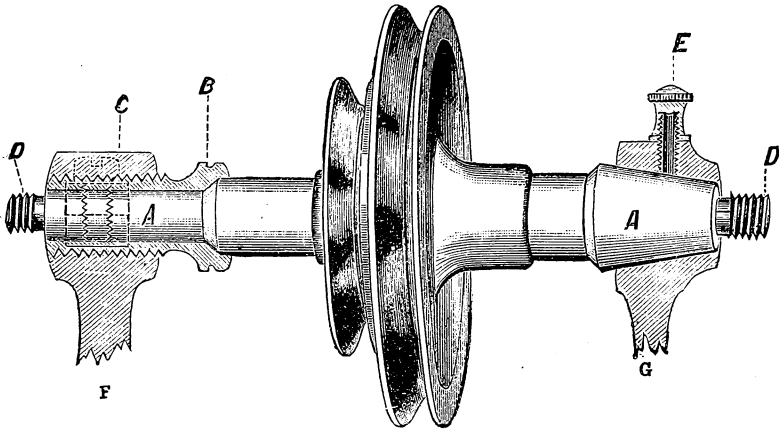


No. 1 UNIVERSAL CHUCK.

Patented, Nov. 14, 1876.

Welch Lathe Head No. 6.

CONE JOURNAL BEARINGS.



We claim our No. 6 Lathe Head to be the simplest and easiest running dental lathe now on the market. There are only seven pieces, including all parts. The spindle A is of one solid piece with the pulley wheel, and has cone bearings at both ends. On the right the large cone bears directly against the standard G; on the left the small cone bears against the brass box B through which the spindle A works. The box B is threaded and is held in place by the cap C, which is secured by a screw on each side of it into the standard F. By loosening these screws the box B can be so adjusted as to take up any wear of the spindle A. D is a thread on each end of spindle A to carry mandrels and chucks represented on opposite page. E is oil cup for oiling spindle. The frame work is japanned and all the bright parts heavily nickel plated. The mandrels are made of brass. Our aim has been to make a first-class, durable dental lathe, and we take pride in claiming that our No. 6 will prove the most satisfactory of any ever offered the profession.

Mandrels Nos. 1, 2, 3, 4 are for the different sizes of corundum wheels, and will be furnished for right or left side of lathe.

Mandrel No. 5 will carry brush and felt wheel cones, etc., on right side of lathe.

Mandrel No. 6, same as No. 5, but for left side.

" 7 will carry lathe burs.

" 8 is for reaming.

" 9 is carrying sand paper, etc.

No. 1 Universal Chuck will carry a drill of $\frac{1}{8}$ inch and under.

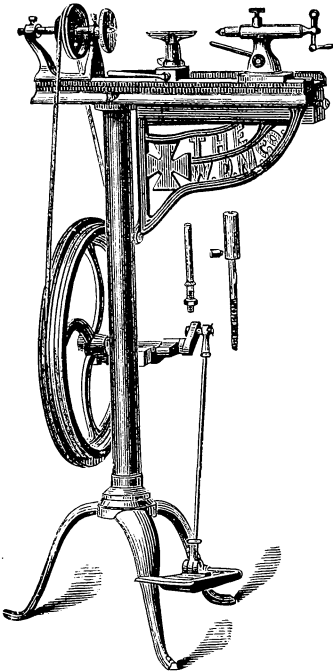
No. 2 " " will carry a drill of $\frac{1}{4}$ inch and under.

Universal Chuck Nos. 1 and 2 are made of hardened steel, three jaws and self-centering. A wrench is furnished with each chuck.

PRICES.

Lathe, complete with Mandrels Nos. 1 to 9,	-	-	-	-	-	\$8.50
Mandrels, Nos. 1 to 9, each,	-	-	-	-	-	25
Universal Chuck, No. 1,	-	-	-	-	-	2.00
" " 2,	-	-	-	-	-	2.50

No. 7 LATHE.



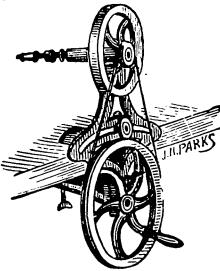
This new lathe is adapted for all light turning in wood or iron. As will be seen by the cut it has the appliances of a larger lathe and it can be used to advantage in many ways. The spindle of the lathe is cone bearing and the slack or wear can be readily taken up. The wheel is large and of sufficient weight to give the power needed.

As a Dental Lathe it is equal to any in the market. It has four chucks or mandrels for corundum wheels, polishing wheels, etc.

Price, - - - \$40.00

BOXING FREE.

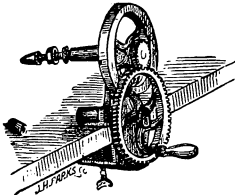
HAND LATHE, No. 1.



By means of the slot and thumb screw in the cut, the spindle can be raised from and lowered to the table, and from or towards the operator. The cord is tightened by a slot and thumb screw and the wheel runs quietly. The spindle is made of the best steel. Furnished with two chucks. Weight four pounds.

Price, . . . \$4.50

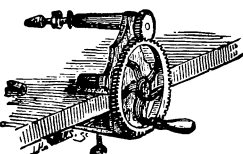
HAND LATHE, No. 2.



A smooth running lathe, very true and capable of good work. Weight only three pounds. With two chucks.

Price, . . . \$4.00

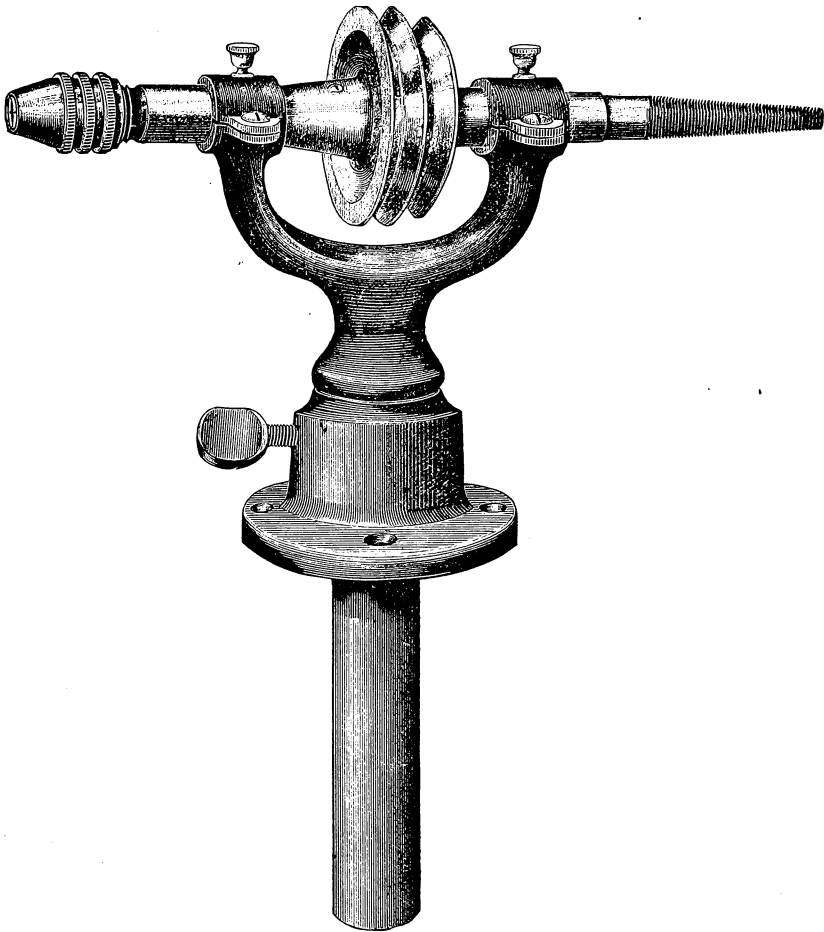
HAND LATHE, No. 3.



Small and neat; and satisfactory to all who have used them, and they are many. Small, strong and durable and almost noiseless. Weight two and one-quarter pounds. Furnished with two chucks.

Price, . . . \$4.00

LATHE HEAD No. 9.



This socket lathe head is constructed to admit of its being raised or lowered $4\frac{1}{2}$ inches. On one end of the spindle is a split chuck and collar, which allow the mandrels to be readily changed, the other end of spindle is made tapering for brush wheels, etc. The lathe is well and durably made.

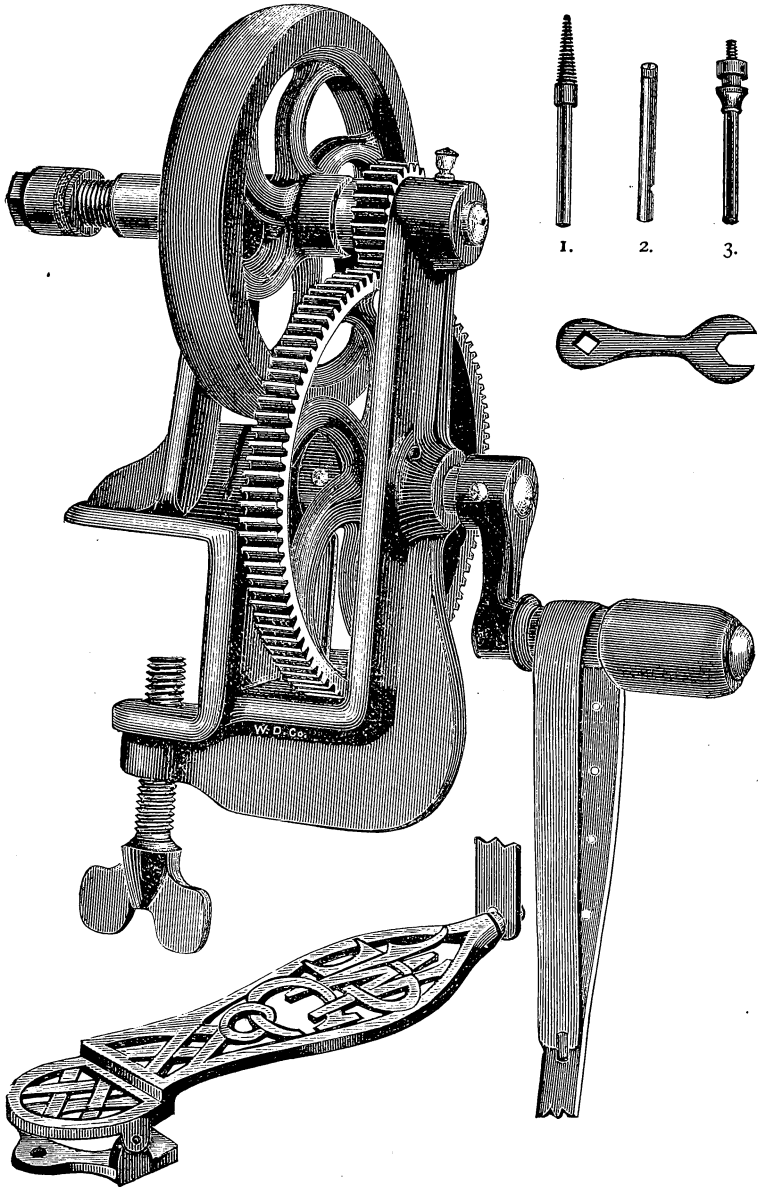
PRICES :

Lathe (see cut) with 3 Mandrels and 3 Chucks,	-	-	\$7.00
Lathe, without Socket, with 3 Mandrels and 3 Chucks,	-	-	6.00

(594)

IMPROVED

CONE JOURNAL HAND & FOOT LATHE.



IMPROVED

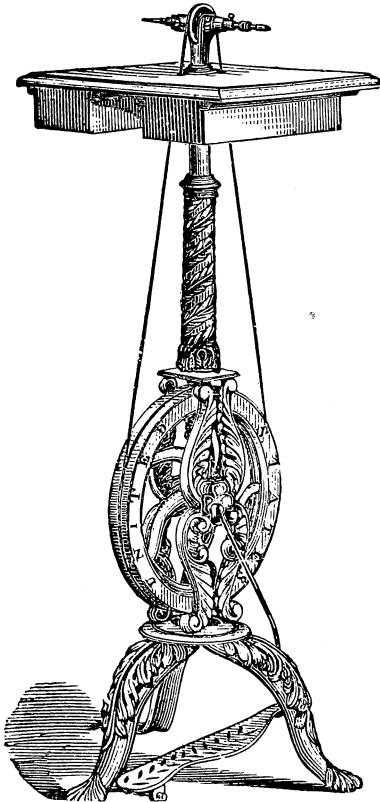
CONE JOURNAL HAND AND FOOT LATHE.

The illustration on the opposite page shows this popular lathe complete.

We have added our improved Universal Chuck to this lathe and this with unusually fine workmanship give us a lathe ahead of any of its kind in the market. The geared wheels are machine cut. For traveling dentists it is unsurpassed, being almost noiseless in its operation and perfectly true running. Weight, complete, nine and one-quarter pounds.

PRICES.

Lathe, complete, as shown in cut,	\$7 00
Mandrel, No. 1,	25
“ No. 2,	45
“ No. 3,	60



LATHE No. 8.

This most complete foot lathe has long had an extensive sale, being known as the United States Lathe, we offer it to those of our customers who desire a cheap lathe already mounted, recommending it to be first-class in every particular. It has a movable column and table, raising eight inches, and can be used sitting or standing. Furnished with two chucks.

Price, complete,	\$16.00
“ Lathe head only,	4.00
“ Stand, cord and coupling,	12.00

Welch Dental Rubbers.

WELCH MAROON RUBBER.

Directions and Information Within.

WELCH DENTAL CO.,
1413 Filbert Street, Philadelphia.

All our rubbers are labeled similar to above and will be found to be as represented. They have been so long upon the market that their good qualities are well known to the profession.

Our Maroon Rubber is praised for its elasticity, strength and beautiful finish. We recommend it to those who desire a first-class rubber that can always be relied upon.

WELCH MAROON RUBBER.

Less than 10 lbs. per lb., \$3 00
In 10 lb. lots. " 2 30

WELCH BROWN RUBBER.

Less than 10 lbs. (postage extra)..... per lb., \$2 30
In 10 lb. lots..... " 1 75

WELCH No. 2 RED RUBBER.

Less than 10 lbs. per lb., \$2 25
In 10 lb. lots..... " 1 70

WELCH WEIGHTED RUBBER.

(FOR LOWER PLATES.)

Per lb \$4 00

WELCH PINK RUBBER.

We have lately put this rubber upon the market, and are pleased to know the satisfaction it gives. It is much stronger than the English Pink, and its color when vulcanized is much more satisfactory.

Price..... per lb., \$5 00

WELCH JET BLACK RUBBER.

For those who desire a pure rubber and one susceptible to a high polish, we can recommend the Jet Black.

Less than 10 lbs. per lb., \$3 00
In 10 lb. lots..... " 2 30

WELCH BLACK RUBBER.

Equal to any ordinary black rubber, and is giving universal satisfaction.
Less than 10 lbs. per lb., \$2 25
In 10 lb. lots..... " 1 70

Waxes for Base-Plates, Etc.

Yellow Wax.

A very tough, pure article and unsurpassed by any; it is perfection for trial plates.

Price.....per lb., \$1.00

Gutta-Percha and Wax.

Preferred by many and a first-class article.

Price.....per lb., \$1.00

Pink Wax.

The color is preferred by many as being much neater looking. We are able to furnish a Pink Wax that is as tough and reliable as our Yellow Wax. We also have it cut to pattern for upper and lower plates. In many respects this is quite a saving of wax.

Price.....per lb., \$1.25

“ Cut to Pattern..... “ 1.50

Wax Sticks.

Very handy for waxing up, etc.

Price.....per lb., \$1.25

Yellow Impression Wax.

Put up in one-half pound boxes.

Price.....per lb., 76 cents.

Gutta-Percha for Base-Plates.

Price.....per lb., \$2.25

Vulcanizable Gutta-Percha.

Price.....per lb., \$2.25

Doherty's Rubbers.

Nos. 1 and 2 Red.....per lb., \$2.25

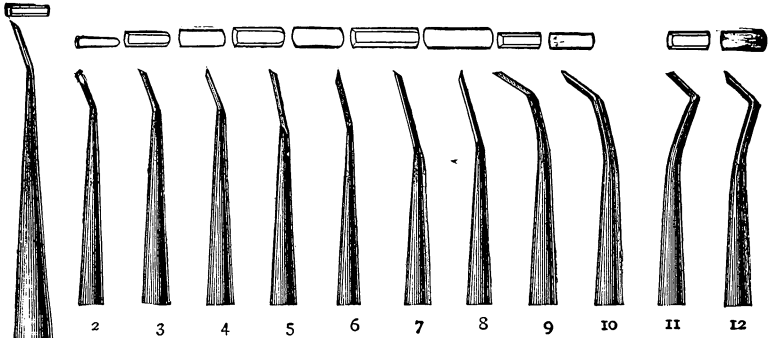
Samson “ 2.75

Weighted..... “ 4.00

Palate..... “ 2.75

EVANS' CHISELS.

(PATTERNS FURNISHED BY DR. W. W. EVANS.)

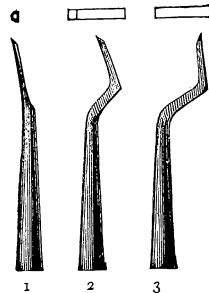


The above cuts show a very valuable set of enamel and excavating chisels. The sizes and shapes of these instruments will explain and commend themselves.

PRICES.

Octagon Handles, Blued, per set.....	\$4 00
File-cut Octagon Handles, Nickel-plated, per set.....	4 80
Points for Socket Handles, per set	4 00
“ “ “ “ each.....	35

MITCHELL'S CHISELS.



PRICES.

Octagon Handles, Blued, each.....	35 cents.
Octagon File-cut Handles, Nickel-plated, each.....	40 “
Points for Socket Handles, each.....	35 “

MITCHELL DENTAL COMPANY

MOORE SCALERS.

Our illustration shows one of the most valuable pairs of Scalers we have ever made. The long points admit of their being used under the gum, and between the teeth. These instruments are also used extensively for trimming the edges in the preparation of cavities, and can be used either with push or pull cut.

PRICES.

Octagon Handles, Blued, per pair.....	\$ 90
Octagon File-cut Handles, Nickel-plated, per pair.....	1 00
Points for Socket Handles, per pair.....	80

LOADED AMALGAM CARRIER.

This instrument is one that is highly prized by those who use amalgam. The large end is filled with a metal that has a strong affinity for the amalgam, and thus the particles of amalgam will adhere sufficiently to be conveniently carried to any position in the mouth, and when the amalgam is inserted the same point may be used as a packer.

The small end is not intended to carry the amalgam, but is used for packing.

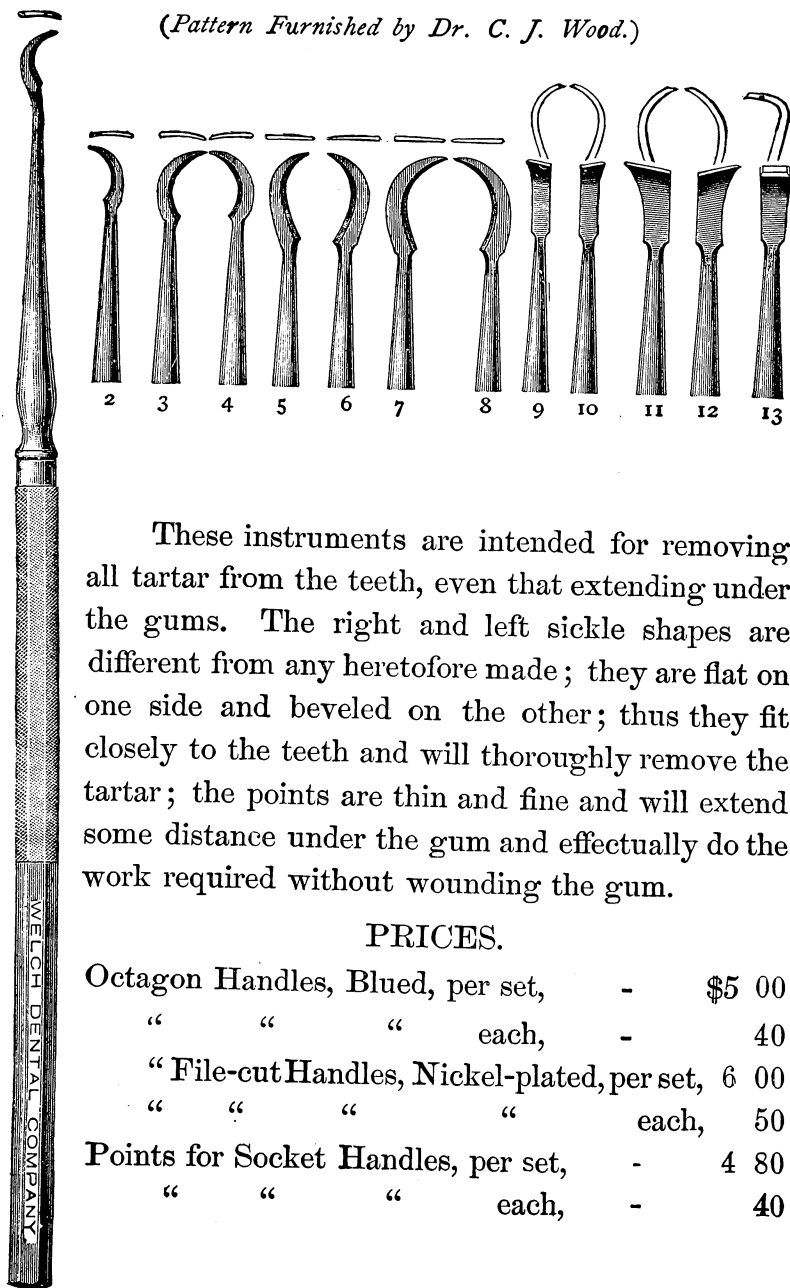
PRICE.

Octagon Handle, Nickel-plated.....	75 cents.
------------------------------------	-----------



WOOD'S SCALERS.

(Pattern Furnished by Dr. C. J. Wood.)



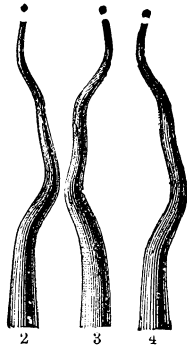
These instruments are intended for removing all tartar from the teeth, even that extending under the gums. The right and left sickle shapes are different from any heretofore made; they are flat on one side and beveled on the other; thus they fit closely to the teeth and will thoroughly remove the tartar; the points are thin and fine and will extend some distance under the gum and effectually do the work required without wounding the gum.

PRICES.

Octagon Handles, Blued, per set,	-	\$5 00
“ “ “ each,	-	40
“ File-cut Handles, Nickel-plated, per set,	6	00
“ “ “ “ each,	50	
Points for Socket Handles, per set,	-	4 80
“ “ “ each,	-	40

(601)

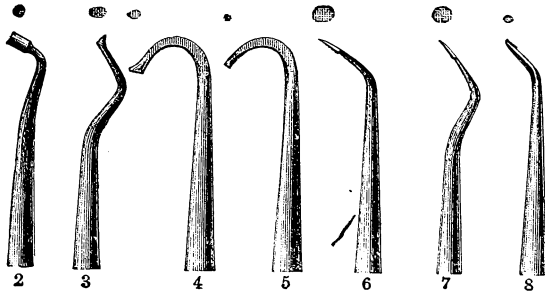
MITCHELL'S PLUGGERS.



These pluggers will be found valuable in very many cases. The curves are such that admit of their use and adaptability to so many different positions that could not easily be reached with any of the ordinary shapes, and the points are in direct line with the handles.

Mallet Handles, as per Cut, Nickel-plated, each, \$1.25.

PLASTIC GOLD PACKERS.

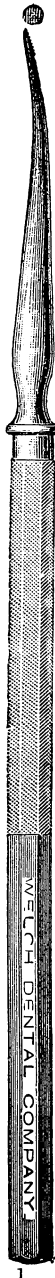


This set of instruments was shaped by several of the profession who are users of plastic gold, but it is not claimed that in this set you will find all the pluggers required in packing plastic gold, but the above patterns are very desirable additions to the regular line of pluggers you may have.

Whilst the instruments as above illustrated were formed especially for plastic gold they are equally as desirable for working amalgams, cements and gutta-percha.

PRICES.

Octagon Handles, Blued, per set.....	\$4 00
“ “ “ “ each.....	55
“ File-cut Handles, Nickel-plated, per set. 4	75
“ “ “ “ each....	60
Points for Socket Handles, per set.....	4 00
“ “ “ “ each.....	50



WATKINS' PLASTIC FILLING AND TRIMMING INSTRUMENTS.

(Patterns Furnished by Dr. S. C. G. Watkins.)

The illustrations show a very complete and practical set of instruments for working plastics.

Nos. 1, 2, 3, 4, for packing amalgam in all cavities that they will reach.

Nos. 5 and 6, for packing amalgam in cavities on the posterior surface of the molars.

No. 7, for carrying amalgam to the different cavities in the posterior surfaces of bicuspid and molars.

No. 8, for carrying to the cavity in ordinary positions.

Nos. 9 and 10, for manipulating and trimming gutta-percha and oxyphosphate fillings in the cavity.

No. 11, for trimming plastic fillings from the cervical walls when the tooth leans posteriorly and is difficult to reach.

No. 12, for trimming and burnishing any plastic filling that it will reach.

Nos. 13 and 14, for trimming amalgam fillings on the approximal and cervical surfaces of the teeth *back* of the second bicuspid.

Nos. 15 and 16, for trimming amalgam fillings on the approximal and cervical walls of all the teeth in front of the second bicuspid.

The thin trimmers, when once used, are considered indispensable.

When ordering double-end instruments, as illustrated, order by numbers in centre of cuts, and state that you desire the double-end instruments.

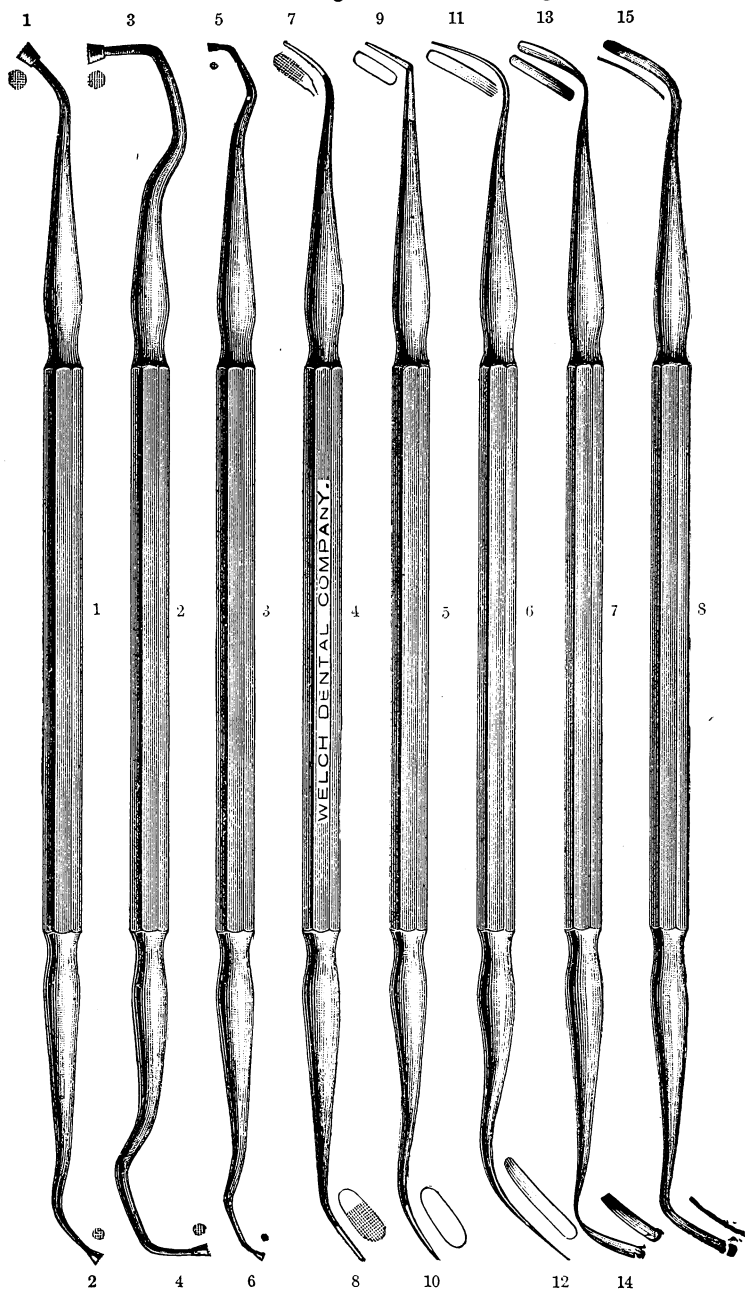
When you desire points for socket handles, please state so, and order by numbers at top and bottom of cuts.

Points Nos. 11, 12, 13, 14, 15, 16 are so delicate that we would advise you to get them for the socket handles.

PRICES.

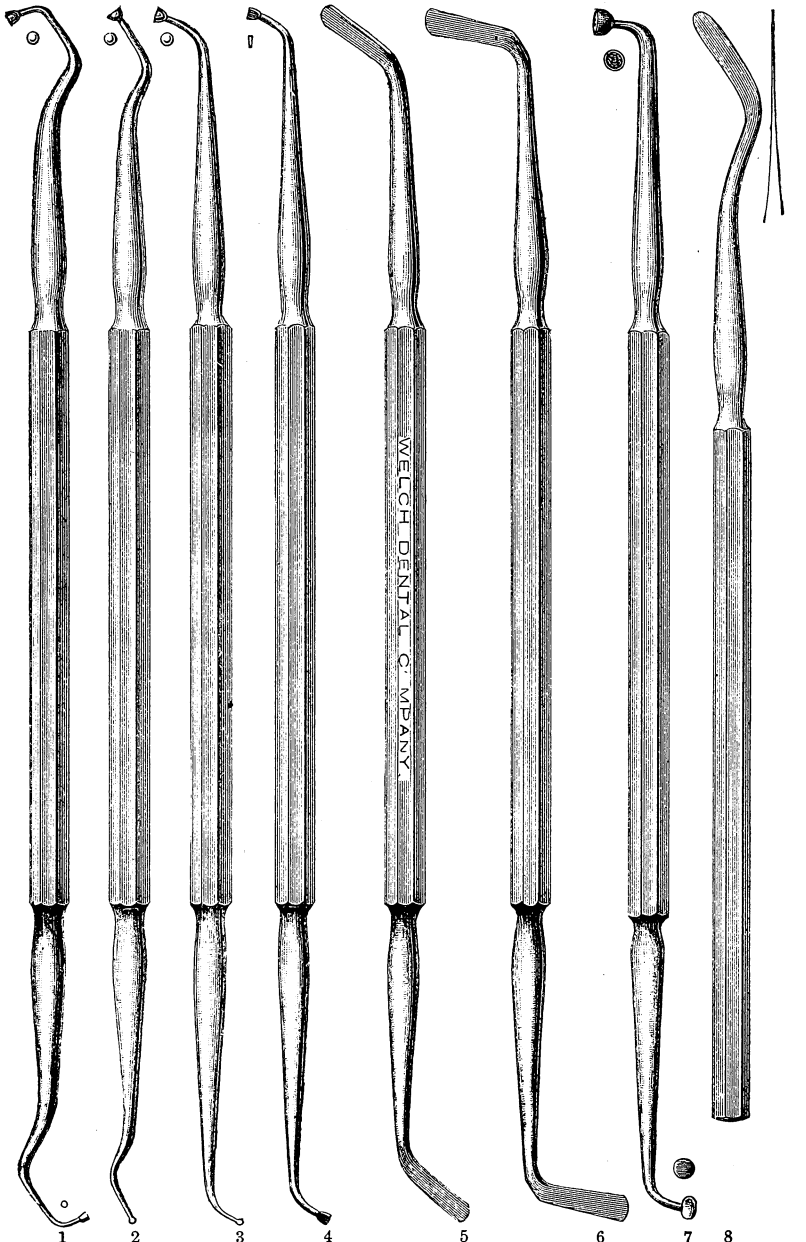
Per set, as illustrated, Nickel-Plated,	-	-	-	-	\$12 00
Points for Socket Handles, each,	-	-	-	-	50

Watkins' Plastic Filling and Trimming Instruments.



LADMORE'S PLASTIC FILLING INSTRUMENTS.

For Introducing Amalgam, Gutta-Percha and Cement.



No. 1 is for filling distal cavities. Nos. 2 and 3 will be found useful in all parts of the mouth; the shapes speak for themselves. No. 4 is for filling fissures in any part of the mouth. Nos. 5 and 6 are for filling cavities between the teeth; they will also be found useful as spatulas and trimmers. No. 7, Plugger and Burnisher combined. No. 8, Spatula for mixing and smoothing fillings; it will also serve as a trimmer.

PRICES.—Octagon Handles, Nickel-plated, per set,

Nos. 1, 2, 3, 4, 5, 6, 7, each	\$5 00
No. 8,	75
	40

PERRY NERVE INSTRUMENT.

This Instrument is made of heavy piano wire, tapering gradually to a fine point, is stiff and firm in shank, giving control over the delicate point. This will be found a very useful instrument for probing and exploring.

PRICES.

With Hard-wood Handle,	-	each,	25 cents.
Without Handle,	- - -	"	15 cents.

ABSORBENT COTTON.

We are selling a perfectly pure, soft cotton unsurpassed by any in the market. It is free from any harshness or foreign matter.

Price, one ounce box	- - - -	12 cents.
" two "	- - -	20 cents.

CHEMICALLY PURE MERCURY.

WELCH DENTAL CO.,

DENTAL DEPOT,

1413 Filbert Street, - - Philadelphia.

We mean exactly what we say when we call this superior mercury *Chemically Pure*. It is not re-distilled, but is exactly the pure unadulterated article as used in the higher grades of clinical thermometers.

Price, per 4 oz. bottle,	- - -	40 cents.
--------------------------	-------	-----------

DONALDSON'S

Spring-Tempered Nerve Bristles.

These instruments are used for removing pulps, cleansing pulp canals, etc. There are two styles. No. 1 is a hook for removing pulps. No. 2 is slightly roughened only to hold a shread of cotton for cleansing pulp canal, etc. These instruments are finely made, and are extra tough, the operator being able to bend them to suit any case without danger of breakage.

Price, with Polished Rubber Handles	- - -	each,	25 cents.
Price, without handles	- - - -	per ½ dozen,	75 "



1 2



Improved Rocking Engine.

PATENT APPLIED FOR.

DESCRIPTION.

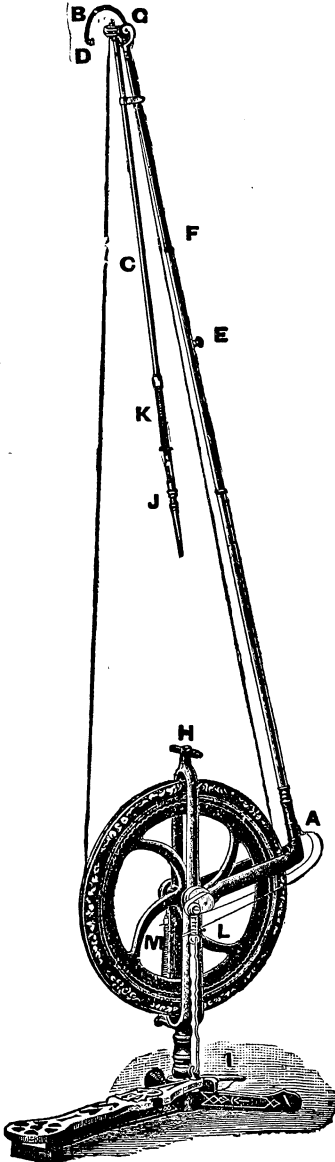
The standard, which is tubing nickel-plated, is held in position by the spring, *A*. This spring is made from piano wire, and gives the standard the most delicate rocking motion of any engine in the market. The standard can be set back by loosening screws at *L*, and pulling spring through slots. To set forward push spring back. The wheel is kept off centre by spring, *M*. To tighten spring screw up at the base.

The standard setting back, allows the operator to place the engine nearer the patient. The spring, *B*, acts as a balance to the arm, *C*, which is covered its entire length with tubing, and therefore is protected at every point from the pulley wheel to hand-piece.

To lower the arm, raise the arm out of wheel, *D*. The spring *B*, is flexible, and can be bent so as to have the arm stand in any position. To tighten belt loosen screw, *E*, and raise top of standard at *F*. The small set screw, *G*, secures the pulley to the arm. Should the inside wire of arm get worn, to take up lost motion, loosen screw at *G*, and pull the wire through a trifle.

H is a handle that is for two purposes. One to carry the engine, and the other to turn the wheel in three different positions. To turn the wheel press spring, *I*, with the foot, and turn to the right. The wheel is held in three positions by slots engaged with spring, *I*. The turning of the wheel allows the operator to get into different positions without changing the position of his foot.

The hand-piece, *J*, is connected by a covered flexible spring, *K*.



Price, with Fourteen Instruments, \$40.00

Boxing, - - - 75c.

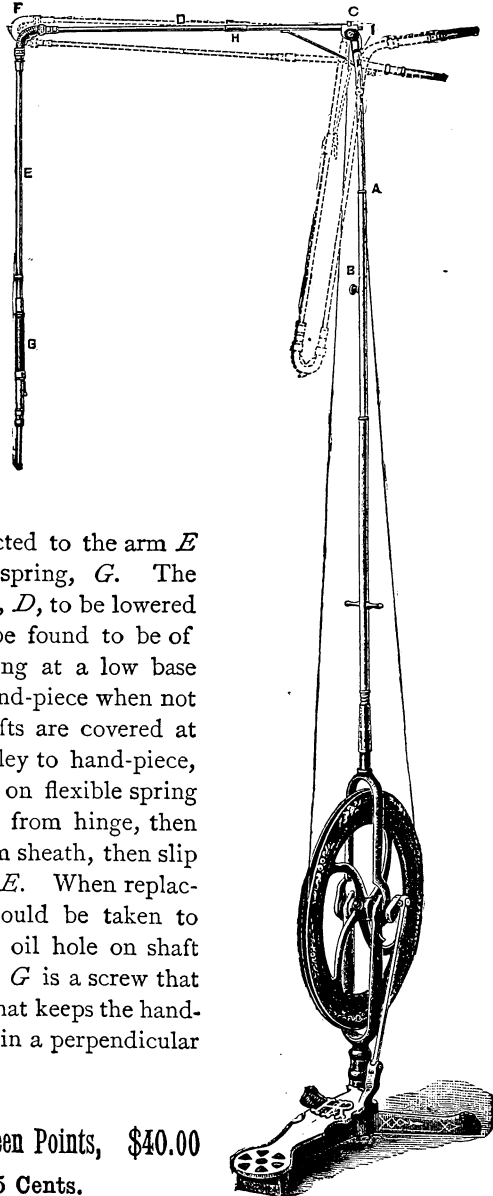
Improved Standard Engine.

[PATENTED AUGUST, 1888.]

DESCRIPTION.

The base carries a driving wheel $12\frac{1}{2}$ ins. in diameter. The standard is ridged, and telescopes at *A*, which allows the tightening of the belt by loosening screw, *B*. On the telescoping section is the pulley, *C*, which is fastened to the arm, *D*. The second arm, *E*, is connected by a covered flexible spring which has a supporting hinge, *F*.

The hand-piece is connected to the arm *E* by the covered flexible spring, *G*. The ratchet, *H*, allows the arm, *D*, to be lowered at any angle. This will be found to be of great advantage in working at a low base chair. *I* is a rest for hand-piece when not in use. The driving shafts are covered at every point from the pulley to hand-piece, as shown in cut. To put on flexible spring at *F*, remove large screw from hinge, then the two small screws from sheath, then slip attachment on to the arm *E*. When replacing spring at *F*, care should be taken to have oil hole in line with oil hole on shaft *E*. In the end of spring *G* is a screw that engages a slot in arm *E*, that keeps the hand-piece from turning when in a perpendicular position.



Price, complete, with Fourteen Points, \$40.00

Boxing,.....75 Cents.

Dr. Genese's Pure Copper Amalgam,

Made by the Electro Process so that there is no excess of Mercury.

DIRECTIONS:—Break enough of the Amalgam for the filling, place in an iron spoon and heat over a spirit lamp until globules of mercury appear over the entire surface; it is then ready to mix in the mortar, and fill the tooth.

Any portion can be reheated and used if the mercury is not pressed too dry.

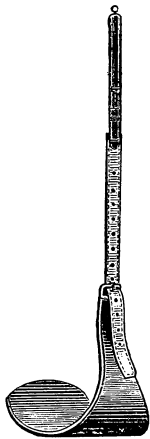
Price per Ounce, - - - - - \$2.00.

—WELCH DENTAL COMPANY, SOLE AGENT.—

Dr. B. H. Teague's Arm-Rest for Dentists.

Patented Oct. 19th, 1886.

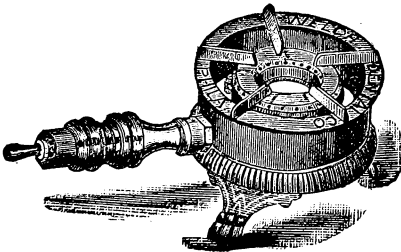
It rests the arm, relieves the back and enables one to operate satisfactorily while sitting. It also obviates the necessity of embracing the head—something so uncomfortable and distasteful to the patients.



The arm rest should be suspended from a strong wire (galvanized laundry wire is suitable), either attached to the ceiling above the chair or stretched from wall to wall, so that when the chair is in its highest position the arm-rest will hang six inches back of the chair with the highest hole in the leather strap on a line with the top of the head-rest.

PRICE, - - - - - \$1.00

Bunsen Stove or Heater.



We here illustrate a Bunsen Heater that is the most perfect heater we have seen, and the price is no more than for an ordinary gas-consuming, slow-heating burner. It will work very nicely for vulcanizing; and for heating, boiling and cooking it is splendid.

PRICE, - - - - - \$1.50

Wants, For Sale, &c.

ADVERTISERS.—Our terms for advertising under above headings will be ten cents per word, including the captions "Want," or "For Sale," and address. Initials will be charged same as words. Cash must accompany advertisements.

104.—**Wanted.**—A first-class mechanical dentist. Address DR. E. C. HONEYWELL, Wilmington. Del.

105.—**Wanted.**—Position in first-class dental office. CLAUD BOSTICK, Roena, Tenn.

106.—**For Sale.**—A \$2,000 practice with nice outfit and dental library. A great bargain. Address, RETIRER, care Welch Dental Co.

107.—**Wanted.**—Situation as an assistant or to take charge of an office by a graduate with 7 years' experience. A fine operator and a fair rubber worker. Address, W. C., care Welch Dental Co.

108.—**For Sale.**—A good dental practice and office located in a growing California city of 80,000 inhabitants. Office has the best location in the city, and is furnished in the most elegant style, and with the most improved dental apparatus. Satisfactory reasons given for selling. A rare opportunity for a young man. Must be a graduate. Address, B. F. G., P. O. Box 3036, Los Angeles, Cal.

THE CHASE DENTAL PLATE

PATENTED OCT. 11, 1887.

This New and Successful Style of making Combination Dental Plates is now offered to the profession with the assurance that it combines the many qualities desirable in an Artificial Plate, viz.:

LIGHTNESS, STRENGTH, CONDUCTIVITY, DURABILITY, SIMPLICITY AND EASE OF CONSTRUCTION, WITH THE MOST PERFECT ADAPTATION TO THE MOUTH, AND COMFORT OF THE WEARER.

TESTIMONIALS.

"I consider the Chase Metallic Roof Plate the best combination plate ever presented to the profession."—Jos. L. Perkins, D. D. S., M. D., St Johnsbur, Vt.

"I like your method of combination plates very much."—Dr. J. C. Briggs, Barre, Vt.

"It makes a very neat, light, comfortable substitute."—Dr. T. Haley, Biddeford, Me.

"I am delighted with it and must cheerfully recommend it to the profession."—Dr. T. Mound, Rutland, Vt.

"It has given great satisfaction both to my patients and myself."—J. B. Morgan, D. D. S., Davenport, Iowa.

"I believe you have struck the right thing in an artificial plate."—Geo. H. Swift, D. D. S., Manchester, Vt.

"I am very much pleased with it."—Dr. Geo. Hoffman, W. R. Junction, Vt.

"I can candidly say that it is far ahead of any which I have ever tried."—Dr. E. A. Burnett, Swanton, Vt.

"Any ordinary dental mechanic can construct one nearly as quick as he can a vulcanite plate."—F. A. Twitchell, D. D. S., Albert Lea, Minn.

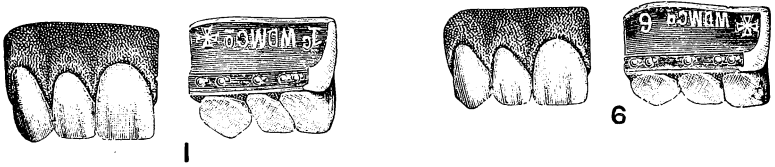
"It is decidedly better than an entire vulcanite or celluloid plate."—Alonzo P. Beals, Philadelphia, Pa.

"I am very much pleased with it, and they are very satisfactory to the patient."—Dr. H. L. Williams, Windsor, Vt.

"It is perfectly practical and reduces the amount of labor to a great extent."—S. Eldred Gilbert, D. D. S., Philadelphia, Pa.

~~22~~ The price for an office right for one year is \$5, including full instructions illustrated by cuts. Address,

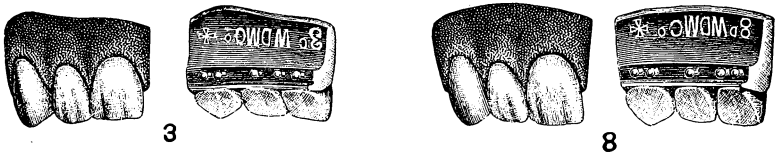
R. M. CHASE, D. D. S., BETHEL, VT.



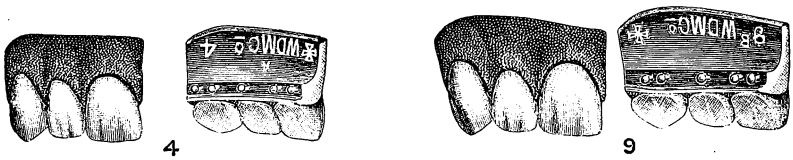
ILLUSTRATIONS



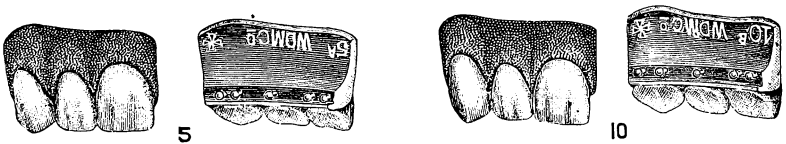
OF A FEW OF THE



New Moulds of

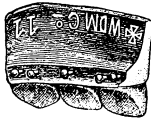


Wilmington Teeth.

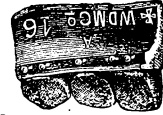




11



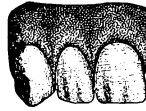
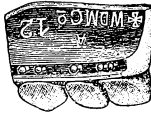
16



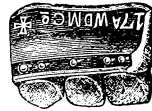
THE WILMINGTON DENTAL MFG. CO.



12



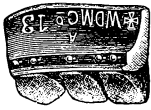
17



WILMINGTON,



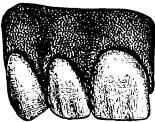
13



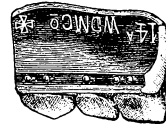
18



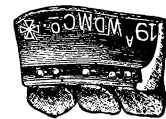
DELAWARE.



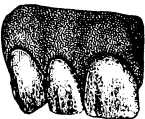
14



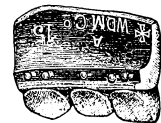
19



Send for New Sample Card of Shades mailed free.



15



20



PROSPECTUS

OF THE

International Dental Journal,

SUCCESSOR TO

THE

INDEPENDENT PRACTITIONER.

The PRACTITIONER enters upon its tenth volume under most favorable auspices. An enlarged syndicate has been formed composed of **one hundred prominent members of the dental profession**. Besides the stockholders, who are also contributors, a full corps of Foreign Correspondents will write regularly for its columns.

The name has been changed in order to better indicate the scope of its enlarged sphere. After the first of January the journal will be the official organ of several of the most prominent eastern societies. Arrangements have been made for a series of **Original Articles** from the pens of some of the best writers on dental subjects, which will in no way fall short of those that have, in the past won for it such **high rank as a Scientific Journal**.

Dr. BARRETT, former editor, will, from time to time, contribute to its columns.

The tread of dental therapeutics is toward antisepsis, and a series of articles on that subject will appear during the year. Especial attention will be given to the **Practical Phase of Dentistry**. Besides the reports of the societies above referred to, comprehensive abstracts from other prominent dental societies will appear. **Only original matter will be published** in the journal; it consequently will come in competition with none.

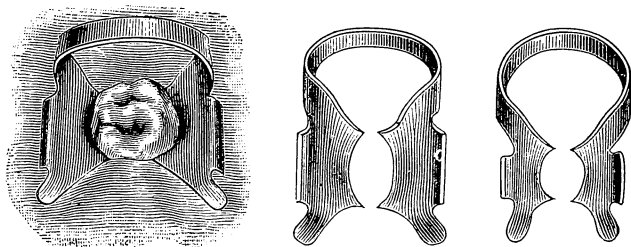
Entirely Independent of all schools, cliques, and advertising firms, it will be outspoken in its judgment of professional matters. **Owned by dentists and published for dentists**, we feel safe in saying that it cannot help becoming the journal in circulation as it is now in the character of its contents.

Those who send in their subscriptions now for 1889 will receive the December number **FREE**. **\$2.50 per annum in advance**.

Postal Orders, Postal Notes, or New York Drafts are the safest and most convenient. All remittances should be sent to the Editor and Business Manager,

Dr. W. X. SUDDUTH,
1215 Filbert Street, - - - Philadelphia, Pa.

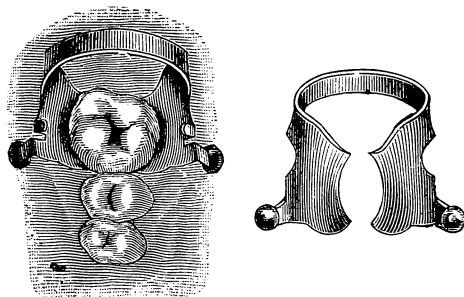
J. W. IVORY'S IMPROVED RUBBER DAM CLAMP.



Patented June 12th, 1888.

This Improved Rubber Dam Clamp makes the matter of adjusting the rubber to a tooth a very simple operation, and when teeth are close together it is simply a model of perfection, as the rubber is carried down between the teeth without the aid of ligatures.

An opening is made in the rubber, and the latter is stretched over the side arms, and is in this way carried on to the tooth in advance of the clamp, and the operator can see through the jaws how he is to apply the clamp. When the clamp is on the tooth the tip of the finger is passed down the arms on either side, and the rubber stripped off the arms, when it drops around the neck of the tooth. The two arms in front holding the rubber down and away so that light, etc., is allowed to gain access, and burs and instruments are kept from revolving into the rubber. There are two forms for molars, universal upper, universal lower, and universal bicuspid.



Patented June 12th, 1888.

These cuts show a Combination Clamp and Napkin Holder, peculiarly adapted to hold the napkin down on the side of the tongue, and to prevent the muscles of the cheek from displacing it, the napkin or bibulous paper being held in place by the arms.

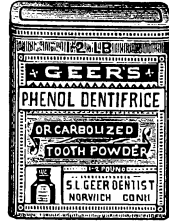
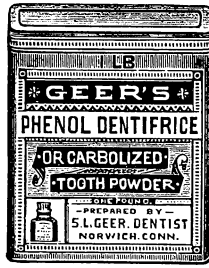
The napkin is put in the mouth in the form of a loop, one part of the napkin on the inside and the other on the outside of the row of teeth, the clamp is then carried on to one of the molars, "first or second molars preferred," and in doing this the napkin is carried down by the arms.

Price, One Dollar, or Three Dollars for Set of 4 Clamps, including Napkin Clamp.

CASH MUST ACCOMPANY ALL ORDERS.

FOR SALE BY

J. W. IVORY, P. O. Box 650, Philadelphia, Pa.



Phenol Dentifrice

—OR—

CARBOLIZED TOOTH POWDER.

To maintain the health of the **MOUTH** and preserve the freshness and beauty of the **TEETH**, the frequent use of a Dentifrice becomes indispensable. It is important to obtain an article free from obnoxious ingredients, the presence of which would surely cause numerous troubles, the origin of which is unsuspected.

The proprietor of Phenol Dentifrice recommends it to the notice of those not already acquainted with its long established merits. This preparation which has been in the highest repute since its introduction in 1870, and sold to the dental profession throughout the **United States** by the leading Dental Depots, is a scientific combination of the finest materials, so united chemically as to insure the greatest efficiency and the best possible results upon the **MOUTH, TEETH and GUMS**.

The excellence of this Dentifrice, the formula of which originated with the proprietor, a dentist of 30 years practice, has obtained for it the strongest recommendation of many of the professors in our **DENTAL COLLEGES**, as well as from those most noted in private dental practice.

As a **TOOTH POWDER** for general use, by old and young, it stands unrivalled.

\$1.00 per lb. in 4, 1, 1-2, 1-4 lb. Cans. \$20. per gross. in 2 oz. bottles.

—SOLD BY—

The Welch Dental Co.,

(Wholesale and Retail.)

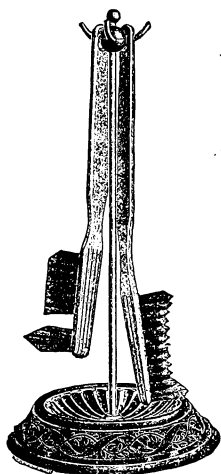
PHILADELPHIA, PA.

“Just the Thing to Give Several of my Patients,” said a Prominent Dentist on Seeing the

IDEAL HOLDER

—FOR THE—

“Ideal Brushes”



A BEAUTIFUL AND SERVICABLE
TOILET REQUISITE.

Brushes hang up, always in place, and outlast two ordinary brushes, because

DRIPPING FROM THE HEAD

the bristles quickly dry, greatly increasing their life and elasticity. These brushes,

The Prophylactic Tooth Brush
and the Florence Dental Plate Brush,

are the Dentist's Standards—The Perfect Cleansers.

A Holder Gratis with a Dozen Brushes. Four Styles:
25c., 50c., 75c., and \$1.00 each.

For particulars write to your depot or to
FLORENCE MANUFACTURING CO., Florence, Mass.

(616)

THE
Dental Manufacturing Co.,
(LIMITED.)

6 to 10 LEXINGTON STREET, GOLDEN SQUARE, LONDON, W.,
71a, GROSVENOR STREET, MANCHESTER.

*We ask attention to the following Specialties of our
own manufacture.*

MINERAL TEETH

OF IMPROVED MAKE, AND IN GREAT VARIETY.

These Teeth possess a naturalness and adaptness to the needs of the dentist,
together with a strength of body unsurpassed by any Porcelain Teeth made.

We court the most critical comparison.

DENTAL INSTRUMENTS.

Our latest introduction in Engine Instruments is **DIAMOND EDGE BURS**, which possess great advantages over ordinary Burs. Much extra care and time are required in their manufacture, and leading operators in this country have spoken highly of them.

Dr. Ladmore's STONED PLUGGERS

MUST BE SEEN TO BE APPRECIATED.

Dentists who have tried them say "they are the most highly finished instruments ever brought to the notice of the profession."

FORCEPS of the latest forms, and of our best make,
are always in stock.

For particulars of our latest Vulcanizers, Lathes, Articulators, Rubbers, and for full List of Workroom Tools (at tool-shop prices) see our List of Specialties, free by post.

Telephone, 330.

Telegrams: London and Manchester—
"FOSSILINE."

SAMSON RUBBER



June 20th, 1876.

No. 1 Rubber.....	Per Lb.....	\$2 25	
No. 2 Rubber.....	“.....	2 25	
Black Rubber.....	“.....	2 25	
Gutta Percha for Base Plate.....	“.....	2 25	
Less than 10 lb., per lb.....	\$2 25	In 25 lb lots, per lb.....	\$1 90
In 10 lb. lots, “.....	2 00	In 50 lb. lots, “.....	1 75
Samson Rubber.....	Per Lb.....	2 75	
Maroon Rubber.....	“.....	2 75	
Flexible or Palate Rubber.....	“.....	2 75	
Vulcanite Gutta Percha.....	“.....	2 75	
Less than 10 lb., per lb.....	\$2 75	In 25 lb lots, per lb.....	\$2 00
In 10 lb. lots, “.....	2 25	In 50 lb. lots, “.....	1 80
No. 1 Weighted Rubber, mixed with Pure Metal, Per Lb.....		\$4 00	
No. 2 “ “ “ “ “ “.....		4 00	
Black “ “ “ “ “ “.....		4 00	
Weighted Gutta Percha.....	Per Lb.....	4 00	

*** EUGENE * DOHERTY, ***

**110 and 112 Kent Avenue, Cor. North Eighth St.,
BROOKLYN, E. D., N. Y.**

RUSSELL'S COPPER AMALGAM IS THE BEST.

—Chemically Pure.—

Composed only of copper and mercury. Precipitated by electricity. Excess of mercury removed by hydraulic pressure. Makes more and better fillings than any other.

PRICE, \$2.50 per Ounce or 5 Ounces for \$10.

MANUFACTURED BY

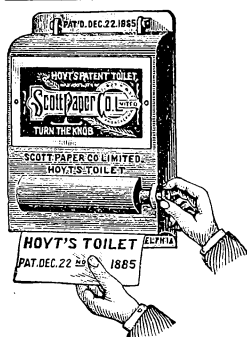
JULIEN W. RUSSELL, M. D. S.,

C. F. FAHRBACH,

P. O. Box 81, Brooklyn, N. Y.

214 California St., San Francisco, Cal.
118] General Agent for the Pacific Slope.

FOR SALE BY
Welch Dental Co.



THE HOYT TOILET PAPER AND CABINET

Is the best article now in the market, both for family and public use. Will name wholesale prices upon application, or will forward, charges paid on receipt of price, as follows:

- | | |
|--|--------|
| 12 packs of paper and one Bronze Family Cabinet, | \$2 50 |
| 12 packs of paper and one Nickel-Plated Family Cabinet, furnished with plate glass mirror, | 4 00 |
| Ruled business bill and letter heads always on hand at lowest market prices. | |

SCOTT PAPER CO., Limited,

25 & 27 N. 6th Street, Philadelphia.

59]

100 Ounces of Davis' Eureka Local Anesthetic will be sold for \$1.50 per ounce, (former price, \$2.50). One ounce is sufficient to extract 100 teeth—painless. Full directions with each ounce.

L. M. DAVIS, M. D.

WALLA WALLA, Washington Territory.

29]



TEAGUE'S DEPRESSED DISKS.

Made of Sand Paper, Emery Paper, Cuttlefish Paper, Emery Cloth and Crocus Cloth, coarse and fine grits of each, except Cuttlefish Paper and Crocus Cloth, these are for polishing. The Crocus Cloth recommended for the lustre it imparts.

July 27, 1886.

Sizes $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, inch Paper Disks,	25 cts. per 100
“ “ “ Cloth “	50 cts. per 100
Assorted $\frac{3}{4}$ and $\frac{5}{8}$ inch Paper and Cloth	50 cts. per 200
“ $\frac{3}{4}$, $\frac{5}{8}$, $\frac{1}{2}$ “ “ “	\$1.00 per 400
“ $\frac{7}{8}$, $\frac{3}{4}$, $\frac{5}{8}$, $\frac{1}{2}$, $\frac{3}{8}$ inch Paper and Cloth	1.25 per 500

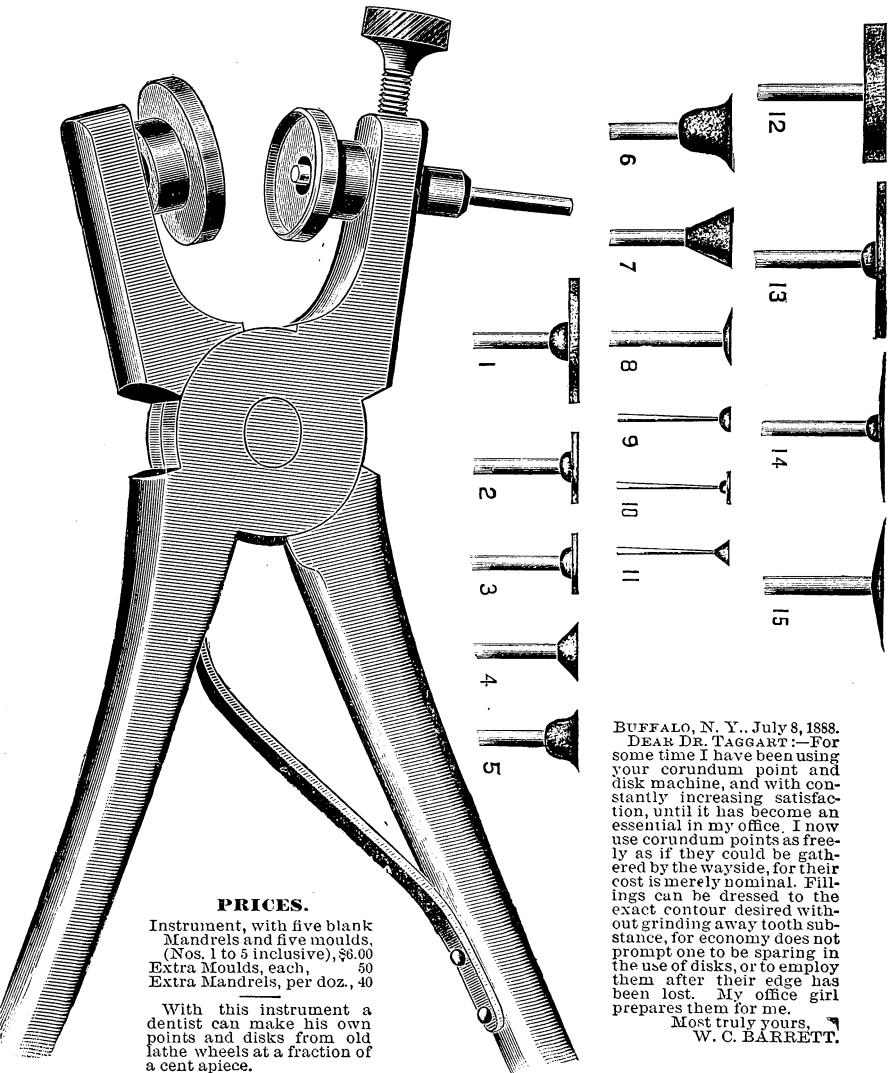
FOR SALE BY

DR. B. H. TEAGUE, Aiken, S. C., or HALLIDAY BROS., Atlanta, Ga., Gen. Agts.

Taggart Corundum Point and Disk Maker

AN INSTRUMENT FOR MOULDING AND MOUNTING, AT THE SAME TIME, CORUNDUM POINTS AND DISKS.

(PATENT APPLIED FOR.)



PRICES.

Instrument, with five blank
Mandrels and five moulds.
(Nos. 1 to 5 inclusive), \$8.00
Extra Moulds, each, 50
Extra Mandrels, per doz., 40

With this instrument a
dentist can make his own
points and disks from old
lathe wheels at a fraction of
a cent apiece.

BUFFALO, N. Y., July 8, 1888.

DEAR DR. TAGGART:—For
some time I have been using
your corundum point and
disk machine, and with con-
stantly increasing satisfac-
tion, until it has become an
essential in my office. I now
use corundum points as freely
as if they could be gathered
by the wayside, for their
cost is merely nominal. Fill-
ings can be dressed to the
exact contour desired with-
out grinding away tooth sub-
stance, for economy does not
prompt one to be sparing in
the use of disks, or to employ
them after their edge has
been lost. My office girl
prepares them for me.

Most truly yours,
W. C. BARRETT.

CHICAGO, July 5, 1888.

DEAR DOCTOR:—The corundum point and disk making instrument received some time ago
is all that is claimed for it, and I regard it as one of the most valuable inventions, particularly
as enabling the dentist to keep constantly on hand at almost no expense the very small points
which are so much needed in daily practice. By the use of these very small points much time
can be saved and more perfect operations insured. Heretofore their great expense has precluded
their general adoption.

Very truly yours, GEO. H. CUSHING.

Address all orders to

W. H. TAGGART, D. D. S., - Freeport, Ill.

University of Michigan.

DENTAL DEPARTMENT.

The 14th annual session will begin October 1st, 1888, and close June 26th, 1889.

A preliminary examination will be held Friday, September 30th, 1888, and all applicants for admission, who do not hold a diploma from a reputable college, seminary, high school or other reputable literary institution, will be required to pass this examination before entering. After the session of 1888-89 three full courses will be required for graduation.

Fees, for residents of Michigan, Matriculation paid once, \$10.00; Annual dues, \$25.00. For non-residents of Michigan, Matriculation, paid once, \$25.00; Annual dues for each term, \$35.00. Graduation fee for all alike, \$10.00. The fees must be paid in advance.

The annual announcement containing full particulars will be mailed to any one by addressing a request to

J. TAFT, Dean, Ann Arbor, Michigan.

691

HOLMES' SURE CURE.

Mouth Wash and Dentifrice.

Cures Bleeding Gums, Ulcers, Sore Mouth, Sore Throat, Cleanses the Teeth and Purifies the Breath; used and recommended by leading dentists. Prepared by Drs. W. R. HOLMES & MASON, Dentists, Macon, Ga. For sale by all druggists and at Dental Depots. \$8.00 a doz., and \$1.00 a bottle.

From JOHN H. COYLE, D.D.S., Professor Operative Dentistry and Dental Materia Medica, Baltimore Dental College.

Gentlemen: I have used your Mouth Wash as an application, to diseased gums, and found it in every case to be a specific. It is also the most reliable and satisfactory styptic after extraction I have ever used. It is an elegant preparation put up in an attractive style, and should be in the cabinet of every dentist. I cannot better emphasize my endorsement of this preparation as a dentifrice than to say I wish every man, woman and child in the whole country kept it and used it according to your printed directions.

ATHENS, GA.—I have had occasion recently to test the virtues of your Sure Cure Mouth Wash in an aggravated case of inflamed and ulcerated gums, with most gratifying results. I find that I can accomplish more in a short time with Sure Cure Mouth Wash than with any other one of the many similar preparations I have ever used in my practice of many years. I wish that every one, old and young, would use your preparation according to the printed directions, and then I think, the dentists would be able to accomplish more good for their patients, and do it with more satisfaction to all concerned.

For sale by Welch Dental Co.

H. A. LOWRENCE, D.D.S.

[99]

COLLEGE OF DENTISTRY.

Department of Medicine of the University of Minnesota.

This College, which succeeds the Dental Department of the Minnesota Hospital College and St. Paul Medical College, has an able Faculty, Special Lecturers, Clinical Instructors and Demonstrators. The System of Instruction is a graded course of three years, comprising three terms of six months each. Lectures will be attended and examinations taken upon Anatomy, Physiology and Chemistry in common with the students in Department of Medicine and Surgery.

Fees for residents of Minnesota, including matriculation,	\$35 00
“ non-resident “ “ “	60 00

Material for dissection at actual cost.

Session opens the first Wednesday in October. For all information, address, CYRUS NORTHPROP, President of University, Minneapolis, Minn.

691

PENNSYLVANIA COLLEGE OF DENTAL SURGERY,

Twelfth Street, between Market and Arch, corner Filbert.

THIRTY-SECOND ANNUAL SESSION, 1888-'89.

FACULTY AND AUXILIARY INSTRUCTORS.

J. EWING MEARS, A.M., M.D., Professor of Anatomy and Surgery.
 C. N. PEIRCE, D.D.S., Professor of Dental Physiology, Dental Pathology and Operative Dentistry.
 WILBUR F. LITCH, M.D., D.D.S., Professor of Prosthetic Dentistry, Materia Medica and Therapeutics.
 HENRY LEFFMANN, M.D., D.D.S., Professor of Chemistry and Metallurgy.
 ALBERT P. BRUBAKER, M.D., D.D.S., Professor of Physiology and General Pathology.

ALONZO P. REALE, D.D.S., Demonstrator of Prosthetic Dentistry.
 PERCIVAL E. LODER, M.D., D.D.S., Demonstrator of Anatomy.
 E. C. KIRK, D.D.S., Lecturer on Prosthetic Dentistry.
 G. W. WARREN, D.D.S., Chief of the Clinics and Demonstrator of Operative Dentistry.
 I. N. BROOMELL, D.D.S., Demonstrator of Prosthetic Dentistry.
 ALEX. P. LONG, D.D.S., Demonstrator of Operative Dentistry.
 JAMES A. KYNER, Ph.G., Demonstrator of Chemistry.
 J. HOWARD GASKILL, D.D.S., Demonstrator of Prosthetic Dentistry.
 G. CARROW CHANCE, D.D.S., Demonstrator of Operative Dentistry.
 A. H. SIBLEY, D.D.S., Demonstrator of Operative Dentistry.
 E. T. DAVIS, D.D.S., Demonstrator of Operative Dentistry.
 MARY H. STILWELL, D.D.S., Demonstrator of Operative Dentistry.

CLINICAL INSTRUCTORS.

DR. F. M. DIXON, DR. C. S. STOCKTON, DR. JOHN B. WOOD,
 DR. J. N. FARRAR, DR. T. F. CHUPEIN, DR. C. E. FRANCIS,
 DR. W. G. A. BONWILL, DR. W. H. TRUEMAN, DR. URIAH KIRK,
 DR. A. L. NORTHROP, DR. J. HAYHURST, DR. E. C. BAXTER,
 DR. C. PALMER, DR. J. G. TEMPLETON, DR. A. H. BROCKWAY,
 DR. R. H. SHOEMAKER, DR. W. E. MILLARD, DR. A. B. ABELL,
 DR. CHAS. F. BONSALL, DR. R. HOLLENBACK.

This College has accepted the requirements of the National Association of Dental Faculties with regard to admission and graduation of students. (See announcement for 1888-9, which can be procured from the Dean.)

THE SPRING AND FALL SESSIONS.

The Spring Course commences on the second Monday in March and continues until the first of July. Fee, \$50, which will be credited upon the fee for the regular session.

The Fall Course will commence on Monday, September 10th, and continue until the first of October, and will be free to those who matriculate for the regular Session.

Attendance upon the Spring and Fall Courses will be deemed equivalent to the term of puplage under a private preceptor.

THE REGULAR SESSION

Will commence on Monday, October first, and continue until the first of March ensuing. Twenty lectures will be delivered each week on the various branches taught.

CLINICAL PRACTICE.

Lecture hours excepted, general clinical practice is available for the student continuously through the day. Competent instructors are always present.

GRADUATION IN MEDICINE.

By an arrangement with Jefferson Medical College, such students as may desire to do so can, if found qualified, obtain the two degrees, in Dentistry and Medicine, in three years. Students desiring to graduate in medicine are required to notify the Dean of their intention at the beginning of their second course.

FEES.

Matriculation (paid but once)	-	-	\$5.00
For the Course (Demonstrators' Ticket included)	-	-	100.00
Dissecting Fee	-	-	10.00
Diploma Fee	-	-	30.00

Board can be obtained at from \$4.00 to \$6.00 per week.

The Instruments and Tools required can be procured for from \$35.00 to \$45.00. This sum does not include the price of dental engine.

For further information, address

UNIVERSITY OF MARYLAND

DENTAL DEPARTMENT.

N. E. Corner Lombard and Greene Sts., Baltimore, Md.

Hon. SEVERN TEACKLE WALLACE, L.L.D., Provost.

FACULTY.

FERDINAND J. S. GORGAS, M.D., D.D.S., Professor of Principles of Dental Science, Dental Surgery, and Mechanism.
 JAMES H. HARRIS, M.D., D.D.S., Professor of Operative and Clinical Dentistry.
 FRANCIS T. MILES, M.D., Professor of Physiology.
 L. McLANE TIFFANY, M.D., Clinical Professor of Oral Surgery.
 J. EDWIN MICHAEL, M.D., Professor of Anatomy.
 R. DORSEY COALE, Ph. D., Professor of Chemistry and Metallurgy.
 I. EDMONDSON ATKINSON, M.D., Professor of Materia Medica and Therapeutics.
 JOHN C. UHLER, M.D., D.D.S., Demonstrator of Mechanical Dentistry.
 CHARLES L. STEEL, M.D., D.D.S., Demonstrator of Operative Dentistry.
 HERBERT HARLAN, M.D., Demonstrator of Anatomy.

Chas. F. Dinger, D.D.S., Isaac H. Davis, M.D., D.D.S., Elmer J. Wisherd, M.D., D.D.S., Assistant Dental Demonstrators. Special instructions in Continuous-gum and Bridge-work.

Each year since its organization has added to the reputation and prosperity of the University Dental School, until now its graduates in almost every part of the civilized world are meeting with the success that ability will ever command. Visiting dentists from all parts of this country have expressed themselves as being astonished and gratified at the ability shown by the students when operating upon patients in the Infirmary. Forming one of the departments of *one of the oldest Universities* in this country, its diploma is everywhere recognized and honored.

The instruction in both operative and mechanical dentistry is as thorough as it is possible to make it, and embraces everything pertaining to dental art. The advantages which the general and oral clinics, to which the dental students are admitted, as indeed to all the lectures of the University afford, cannot be overestimated. The many thousands of patients annually treated in the University Hospital, which is well known to be the largest Hospital in Baltimore, afford an abundance of material for the dental infirmary and laboratory practice, and the oral surgery clinics.

The Dental Infirmary and Laboratory building is one of the largest and most complete structures of the kind in the world. The Infirmary is lighted by forty-seven large windows, and is furnished with the most improved operating chairs.

The Dental Infirmary and Laboratory are open daily (except Sundays) during the entire year for the reception of patients; and the practice for dental students has increased to such an extent that all the students during the past session have had an abundance of practical work in both operative and prosthetic dentistry—the Record Books showing to the credit of many of them *hundreds* of gold fillings inserted for infirmary patients, besides other operations. This means for practical instruction has already assumed such large proportions that the supply has been beyond the needs of the large classes in attendance during the past session.

The exceedingly large number of patients for the extraction of teeth affords ample facilities for practical experience to every student.

QUALIFICATIONS FOR GRADUATION.—The candidate must have attended two full courses of lectures of five months each in different years at the REGULAR or winter sessions in this institution. The following, however, will be considered as an equivalent to an attendance on one course of lectures in this College: One course in any reputable Dental College; graduation in a reputable Medical College, with one year of dental pupillage in a dental infirmary. The student meeting either of the above requirements will have the privilege of presenting himself as a candidate for graduation at the end of but one course of lectures. The matriculant must have good English education; a diploma from a reputable literary institution, or other evidence of literary qualification will be received instead of a preliminary examination. All students, both juniors and seniors, have equal advantages in operative and mechanical dentistry in this institution throughout every session.

GRADUATION IN MEDICINE.—Graduates of the Dental Department of the University of Maryland are required to attend but one session at the University School of Medicine prior to presenting themselves as candidates for the degree of "Doctor of Medicine." (See catalogue).

The REGULAR or WINTER SESSION will begin on the first day of October of each year, and will terminate about the first part of March.

The SUMMER SESSION, for practical instruction, will commence in March and continue until the regular session begins. Students in attendance on the summer session will have the advantage of all the daily Surgical and Medical Clinics of the University.

The fees for the Regular Session are \$100, Demonstrator's fees included; Matriculation fee, \$5; Diploma fee, for candidates for graduation, \$30; Dissecting ticket, \$13.

For Summer Session, no charge to those who attend the following Winter Session.

BENEFICIARY.—A Beneficiary student will be received from each State, on the recommendation of the State Dental Society, on the payment of half of the tuition fees. Board can be obtained at from \$3.50 to \$5 per week, according to quality.

The University prize and a number of other prizes will be specified in the annual catalogue. Students desiring information and the annual catalogue will be careful to give full address and direct their letters to

F. J. S. GORGAS, M.D., D.D.S.

Dean of the Dental Department of the University of Maryland,

NORTHWESTERN COLLEGE OF DENTAL SURGERY.

(Department of Dental and Oral Surgery, of Lake Forest University.)

Southeast Corner Wabash Avenue and Twelfth Street.

Chicago, - - - - - Illinois.

OFFICERS.

WM. C. ROBERTS, D. D., L. L. D., President.

F. H. B. McDOWELL, Actuary.

FACULTY.

G. C. PAOLI, M. D.,

Emeritus Professor of Materia Medica.

N. P. PEARSON, A. M., M. D.,

Emeritus Professor of Pathology.

R. W. CLARKSON, D. D. S.,

Professor of Operative Dentistry.

BYRON D. PALMER, D. D. S.,

Professor of Prosthetic Dentistry.

NORMAN J. ROBERTS, D. D. S.,

Professor of Oral Surgery.

JOSEPH HAVEN, M. D.,

Professor of Physiology and Diseases of Nervous System.

J. E. HEGUERNBOURG, M. D.,

Professor of Anatomy and Principles and Practice of Surgery
and Surgical Pathology.

J. H. LYON, A. M., M. D.,

Professor of General and Dental Pathology.

F. C. CALDWELL, M. D.,

Professor of Materia Medica and Therapeutics.

J. H. SALISBURY, M. D.,

Professor of Chemistry.

Announcement For The Session of 1888-89.

The annual Winter Course opens on the first Tuesday in October, and continues until the last Saturday in March following. The Course offers to those about to undertake the study of the profession of Dentistry, one of the best Courses offered in the United States. Its clinic is the largest of any dental school in the Western Middle States, and the character of its patients is such as to give its students the practical experience necessary to a complete dental education. Students of both sexes who are able to pass the required examination are admitted.

FEES.

For the first and second years a student is a member of the College, the fee is \$100 per year; for any subsequent year, \$50. There are no other fees, either for matriculation, demonstration or diploma, the above covering all the tuition and graduation fees of the Course. For annual catalogue and any other information, address

F. H. B. McDOWELL, Actuary,

1201 Wabash Ave., Chicago, Illinois.

Dr. E. T. BARR'S LOCAL ANÆSTHETIC.

We have received many good words for this Anæsthetic in the painless extraction of teeth, and it is with pleasure we recommend it to our friends. Dr. Barr does not claim it to be infallible, but guarantees that two-thirds of the extractions will be painless. The gums must be thoroughly dried and the anæsthetic applied with a piece of absorbent cotton. Put up in 2 ounce bottles.

PRICE, Postage Paid, - - - \$1.00.

DOCTOR, Do you want to buy or sell a Dental practice? Partners, Assistants and Substitutes furnished. Some fine locations for sale. Send full particulars with stamp. Address,

DR. E. C. JONES,

372 UNION AVENUE,

PATERSON, N. J.

[109]

AS RELIABLE REPAIRING

is an important matter to every Dentist, would inform them, we give it the same attention as new work.

PART PRICE LIST:

Excavators,	- - - -	Per Dozen,	\$.75
Engine Burs,	- - - -	"	.75
Engine Burs Repaired and Honed,	- - - -	"	1.50
Varney and Other Fine Pluggers,	- - - -	" 2.50	3.00
Pluggers, Ordinary,	- - - -	"	1.50
FORCEPS, Repaired and Nickel-Plated,	- - - -	each,	.60

LUKENS & WHITTINGTON,

DENTAL INSTRUMENT MANUFACTURERS,

[127]

626 Race Street,

PHILADELPHIA, PA.

PORCELAIN TEETH.

We recommend to our customers the use of the now celebrated product of

The Wilmington Dental Manuf'g Company

knowing the teeth now produced by them are unequalled in form, color, texture and all essentials necessary in artificial teeth to constitute a first class denture. To the already large and varied assortment, new forms and sizes are constantly being added.

For those who have never used the

Wilmington Teeth.

we would ask of them to send us their next order. We will take pleasure in sending sample cards to any dentist furnishing us with his address.

PRICES.

In lots of 11 sets.....	\$10.00
“ 29 “	25.00
“ 60 “	50.00
“ 92 “	75.00
“ 125 “	100.00
In lots less than 11 sets.....	1.00
“ “ 14 teeth, 8 cents per tooth.	

Stationery for 1889.

We offer unusual inducements for furnishing you stationery for the coming year. Our

DIAGRAM APPOINTMENT BOOK,

for those who desire to use a diagram, is not equaled, combining simplicity and neatness. We are furnishing unusually fine paper and good binding, with the inducement of low prices; being able to do so on account of their large sale, and in consequence, being able to buy largely at one time, giving you the benefit of low figures. Our

No. 1 APPOINTMENT BOOK

is well-known to all old practitioners. We have improved on the old style by adding a memorandum and cash account for each month. Our claim is that we give an extra fine paper and leather binding at prices one-third to one-half less than other dealers. We pride ourselves upon the manner in which this book is made.

All regulated offices of course must have a ledger, and who is not pleased with the

ALLPORT REGISTER,

so simple and neat, and as we sell it so well-made, we are looking for a larger sale than ever for this popular book. Those who use this register should have our No. 3 or No. 4

BILL HEAD,

which is similar; the No. 4 is the best, as it is ruled and not printed, making with the register a complete outfit.

Examination Tablets

are being more and more used, they cost such a trifle, a chart of three months can be made for one cent, that it is economy and a satisfaction to use them.

The above are of course specialties of ours, but for any who desire something different we would say that we can furnish any ledger, appointment-book or register desired.

